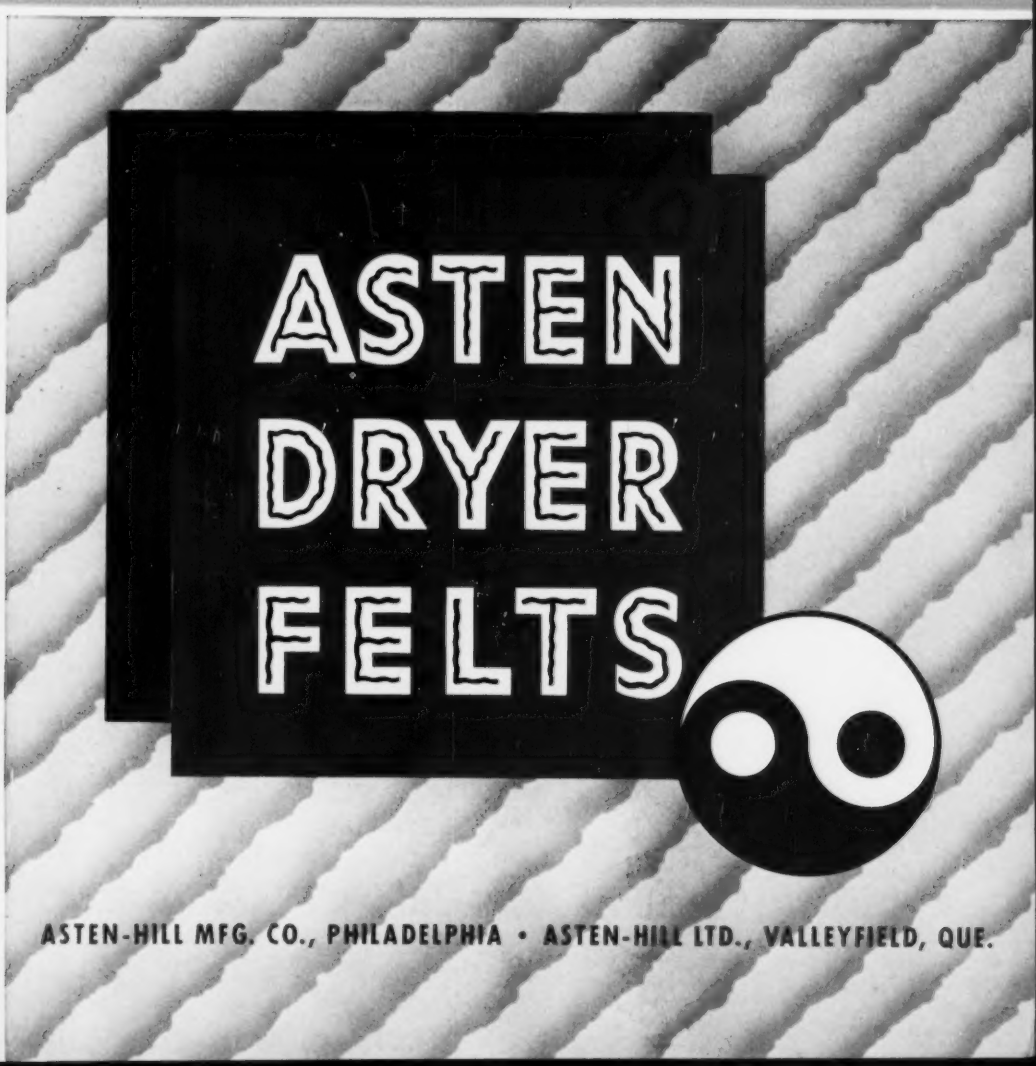
Paper TRADE JOURNAL

FEBRUARY 10, 1949



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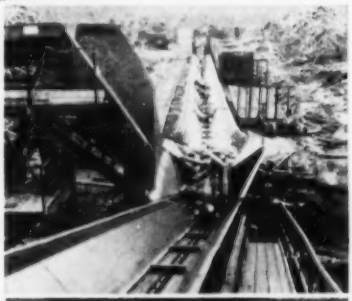
REX Pulp Mill Chains

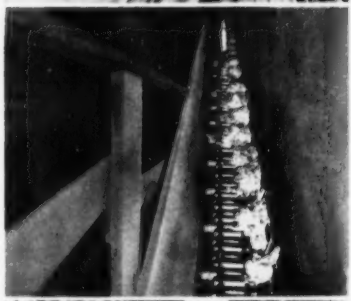
Maximum wear resistance and the *ultimate* in *shock resistance* are built-in features of all Rex Pulp Mill Chains. These quality chains are designed for dependability . . . for long-lasting service under every type of operating condition. Right through the mill, there's a Rex Chain that's right for every operation from log haul to the digesters.

With standard Rex Chains, you can forget about production hold-ups due to drive or conveyor failures. Rex Chains keep going under loads and operating conditions where ordinary chains would quickly fail.

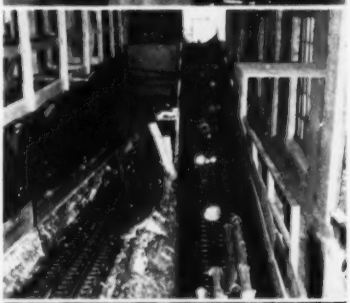
For complete information and selection assistance, call your Rex Field Office or write direct to Chain Belt Company, 1605 West Bruce Street, Milwaukee 4, Wis., for your copy of Catalog 48-27.



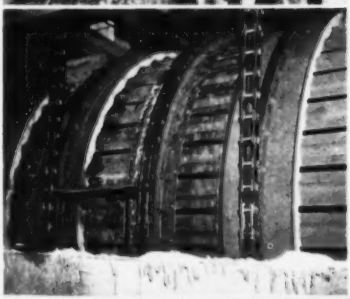
This wood yard conveyor uses husky Rex Mill Refuse and Log Chains. Designed with alternating cast block links and steel side bar links, these chains provide a large sliding surface and maximum bearing area.



Rex H-Type Conveyor Chains are used in this refuse conveyor. Operating in shallow troughs, these chains with their great width assure large capacity at low speeds. Wide wearing shoes, reinforced barrel faces and vertical lugs on the side bars provide extra wear resistance.



One of the most popular chains in the wood room is husky Rex Combination. Inside block links of malleable iron or Rex Z-Metal and high carbon steel side bars assure plenty of wear-resistance. Chain links can be turned over when wear does take place, assuring double life.



Plenty of drive for the barking drum is assured by sturdy Rex Chabelco Steel Chain. Combining relatively light weight with high strength, it withstands the severe vibration and shocks . . . lasts longer.

CHAIN BELT COMPANY — REX — DRIVE AND CONVEYOR CHAINS

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are Good Wires

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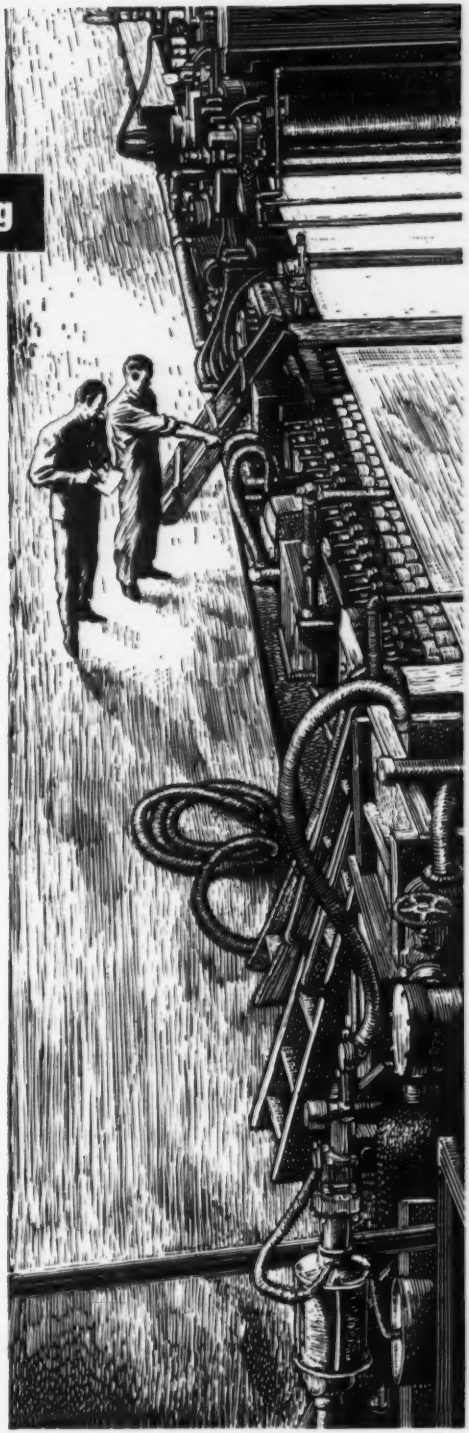

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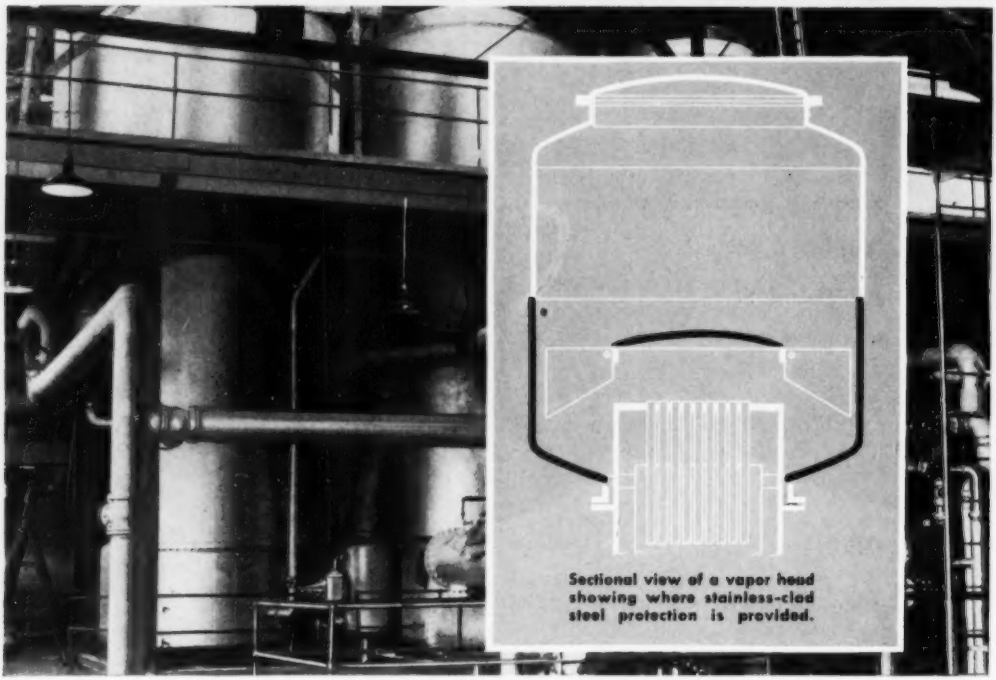
Swenson Evaporators use Clad Steel



Because black liquor gets corrosive as it becomes more concentrated, Lukens Stainless-Clad Steel is used in the first effect and quite often in the second effect.

Ordinary steel faces no corrosion problem in the latter effects of processing in Swenson evaporators. But in the first effect, when the black liquor has become concentrated, corrosive conditions are severe. That's why the vapor head is stainless-clad steel.

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Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

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Subscriptions:

Payable in advance.
By the year, $5.00
Single copy 15 cents.
Canada, $7.00
Other Foreign countries, $8.50

MEMBER

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VOL. 128 **NO. 6**

Entered as Second Class matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U.S.A. Copyright 1949 by Lockwood Trade Journal Co., Inc. PAPER established Feb. 17, 1899, combined with PAPER TRADE JOURNAL, Nov. 16, 1899. PAPER, established Sept. 21, 1910, combined with PAPER TRADE JOURNAL, February 19, 1926. All rights to the above titles reserved. Contents of PAPER TRADE JOURNAL, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission. PAPER TRADE JOURNAL is indexed in *Industrial Arts Index* and *Engineering Index*. Also publisher of LOCKWOOD'S Annual DIRECTORY OF THE PAPER AND ALLIED TRADES.

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THE six Midwest automatics shown above are beating 3 to 5 times as much stock as the same number of ordinary beaters could ever hope to beat—approximately 50 tons each—enough for five machines running specialties.

Each of the first five beaters is serving a particular machine and each is processing a furnish that is an exact duplicate of a previous "master" furnish because all furnishes are automatically controlled. The sixth beater is being used as a spare.

Because one automatic can do the work of several conventional beaters—and because most of the power is used for work rather than just for circulating the stock around the tub—the saving on power is truly impressive.

It may be customary to use 3 to 5 beaters ahead of an average machine—112" or 116", let us say—but it is not at all necessary. One Midwest automatic will with ease beat enough stock for any 112" or 116" machine.

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THE MIDWEST-FULTON MACHINE CO., DAYTON 1, OHIO

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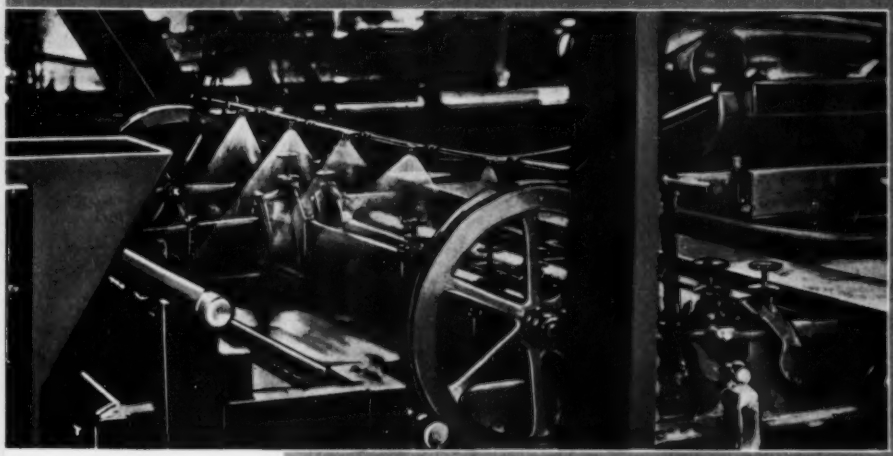

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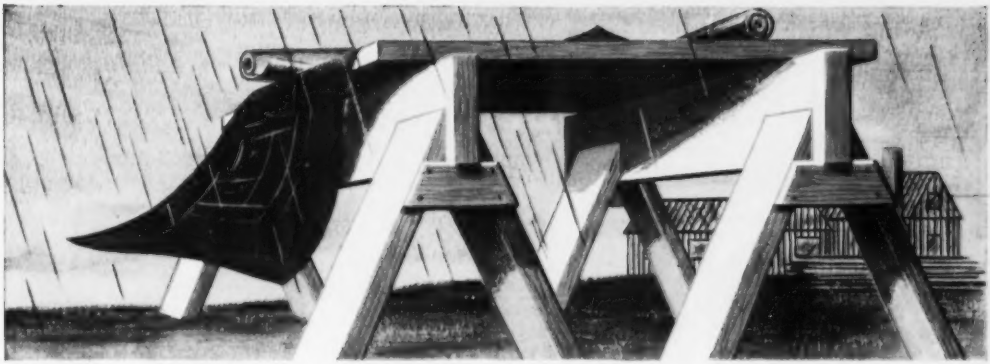

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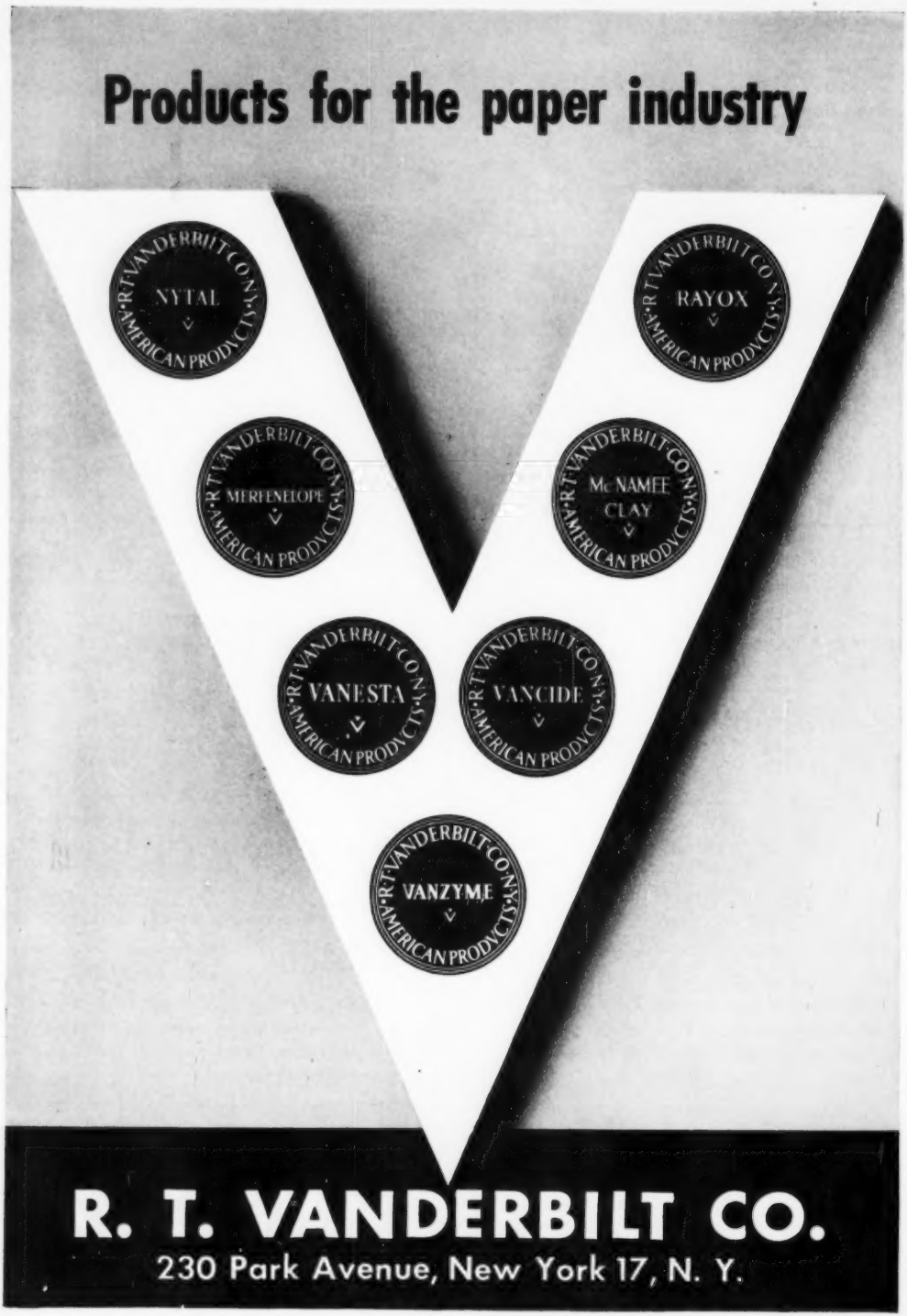
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Paper TRADE JOURNAL

FEB. 10, 1949

VOL. 128, NO. 6

Origination and Termination of Carload Traffic

By States and Regions

Pulpwood, Wood Pulp, Waste Paper and Rags, Newsprint, Printing Paper, Wrapping Paper, Paper Bags, Paper Articles, Paperboard, Wallboard and Building Paper[1]

WASHINGTON—Beginning with January 1, 1947, the Interstate Commerce Commission (Bureau of Transport Economics and Statistics) revised the rail freight commodity classification to include 262 commodity classes as compared with 156 classes formerly used.

All Class I railways (those with operating revenue above $1 million) are required to use the ICC commodity classification in their annual and quarterly reports to the ICC, showing freight tonnage (2,000-pound tons) originated and terminated.

The carload revenue tonnage of all Class I carriers is published by the Commission in statements that show traffic originated and terminated by individual States and the District of Columbia. The New England States are included as a group and constitute the sole exception. Since 1940, ICC Statement No. Q-550, containing carload commodity traffic by individual States, has been published annually and quarterly (also monthly during the war period). From 1940 to 1946 the publication adhered to the old breakdown of 156 commodity classes. Pulp and Paper Products are presented in the old and new ICC classifications as shown in the accompanying tabulation.

Old and New ICC Classifications

1940-1946 (old breakdown)		1947 (new breakdown)	
Class No.	Item	Class No.	Item
420	Pulpwood	409	Pulpwood
650	Newsprint paper	653	Woodpulp
651	Printing paper, n.o.s.	655	Scrap paper and rags
694	Paper bags and wrapping paper	657	Newsprint paper
695	Paperboard, pulpboard and wallboard (paper)	659	Printing paper, n.o.s.
696	Building paper and prepared roofing material	661	Wrapping paper
		663	Paper bags
		665	Paper and paper articles, n.o.s.
		669	Paperboard, fibreboard and pulpboard
		671	Wallboard
		673	Building paper and prepared roofing materials

(All other pulp and paper items were included in Class 701, Manufactures and Miscellaneous, n.o.s.)

Basic terms used in the ICC statistics of Class I rail carload originations and terminations may be defined as follows:

A *carload* consists of a shipment of not less than 10,000 pounds of one commodity.

Originations include carload shipments originated directly by the reporting Class I rail carrier, shipments received from water lines and highway motor truck lines and outbound freight which has been accorded transit privileges.

Terminations include carload shipments terminated directly by the reporting Class I rail carrier, and shipments delivered to water lines and highway motor truck lines.

Further explanation of terms together with description of the procedure followed by individual steam railways in reporting commodity statistics to the ICC is contained in an ICC Order dated September 24, 1946. The order is published in the Freight Commodity Classification, 1947 edition, available from the Association of American Railroads, 330 Transportation buildings, Washington 6, D.C.

Although the freight commodity statistics shown in ICC Statement Q-550 include almost all the traffic handled by U. S. Railways, the following data are omitted:

(a)—Originations and terminations by Class II and Class III roads.

(Continued on page 43)

Carload Waybill Analysis, 1947

(Percentage Distribution of Carloads by Weight Brackets)

Commodity class	Number of carloads	Percent of carloads weighing: Under 20,000 lbs.	20,000-40,000 lbs.	40,000-60,000 lbs.	60,000-80,000 lbs.	80,000-100,000 lbs.	100,000 lbs & over
Wood pulp	656	..	1	10	24	41	24
Scrap paper, rags	1,526	..	74	22	2	1	..
Newsprint paper	681	..	..	64	34	1	..
Printing paper, n.o.s.	720	1	5	57	29	7	1
Wrapping paper	412	2	11	48	29	8	2
Paper bags	244	5	14	62	17	2	..
Paper, paper articles	499	4	70	21	3	1	..
Printed matter, n.o.s.	104	5	25	31	24	11	3
Paperboard, fiberboard	1,206	..	16	62	17	4	1
Wallboard	570	1	3	24	64	8	1
Building paper, roofing	784	1	9	20	67	3	..
Insulating materials	491	8	70	12	7	1	1

Source: Bureau of Transport Economics and Statistics, Interstate Commerce Commission.

[1] Prepared by the Pulp and Paper Section, Office of Domestic Commerce with the cooperation of the Transportation Division, Office of Domestic Commerce and the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.

Forest Products Research Society—New Eng. Sec.

Chicopee, Mass., March 24-25

CHICOPEE, Mass. — The Northeast Section of the Forest Products Research Society will officially commence its organizational activities here for 1949, March 24-25. Site of the meeting will be the new plant of A. G. Spalding & Bros., Inc.

As with previous meetings, section members and their guests from New York, New Jersey, Pennsylvania, the New England states and Canada will participate. Professor Fred E. Dickinson of Yale University, chairman of the meeting, has arranged a program particularly concerned with the handling of lumber from logging through the various machining phases to actual marketing.

The inaugural session, March 24, will open with registration at 9:00 a. m. Papers and subsequent discussion on the following subjects will occupy the morning session:

"Production Efficiency", "Quality Control in Specialty Products."

A luncheon, sponsored by the Spalding Co., will follow, with Nathan Tufts of the New England Box Co. as guest speaker.

A Primary Manufacturers' Clinic will be held in the afternoon with E. R. Plunkett as moderator. The clinic will be developed around papers on "Raw Material Supply", "Logging", "Sawmilling", "Grading and Remanufacture" and "Marketing".

Following the discussion, the now familiar a la carte Paul Bunyan Bar will precede informal group dinners, at which time Dean Garratt, the national president of the Society, will report on FPRS affairs.

The March 25 morning session will be devoted to a guided tour of the Spalding plant.

The concluding session will get underway at 12:30 p. m. with a Wood Machining Clinic over which Chester L. Babcock will preside as moderator.

Programs and additional details may be had by writing to F. Powell Forbes, Box 385, Madison, N.J.

Southeastern PTA Meet

RICHMOND, Va.—The Southeastern Paper Trade Ass'n., convening at the John Marshall hotel, on January 21 for its annual meeting elected officers, by unanimous vote, as follows: Travis H. Epes, Jr., Epes-Fitzgerald Paper Co., Inc., Richmond, Va., president; J. Warren White, Jr., Old Dominion Paper Co., Norfolk, Va., vcie-president, fine paper division; A. B. Henley, Henley Paper Co., High Point, N.C., vice-president, wrapping paper division; H. M. Snyder, Spaugh Paper Co., of Hickory, Inc., Hickory, N.C., secretary; and W. A. Rose of the B. W. Wilson Paper Co., Inc., Richmond, Va., treasurer. The foregoing and Ernest C. Mead constitute the board of governors of the Association.

Committee reports were received, including plans for the Virginia Beach meeting which will be held June 23-25 at the Cavalier Hotel, and the Mid-South Paper Co., of Fayetteville, N.C., was elected to membership in this organization.

The members voiced appreciation of the fine manner in which retiring President Thomas J. Craig administered the affairs of the Association during 1948, and accepted with regret the resignation of W. Disney Cole who, for more than 20 years had very capably served as treasurer.

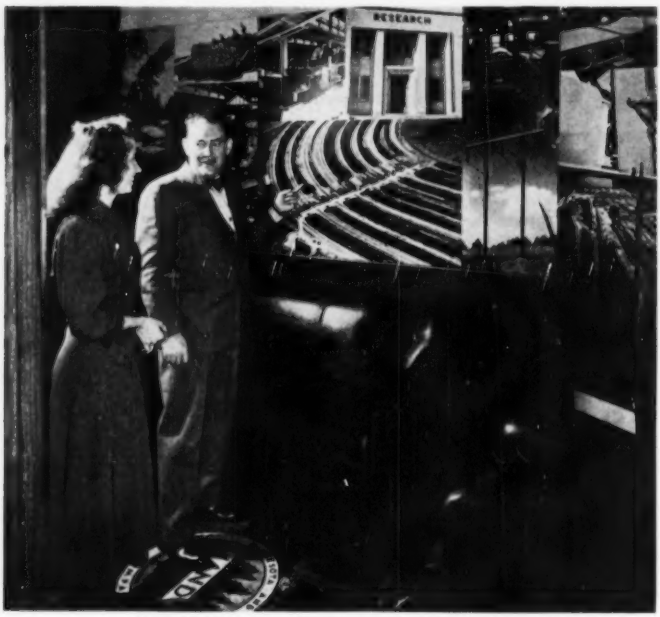


PHOTO MURALS FOR MANDO CHICAGO OFFICE

Enlarged photographs covering dramatic phases of pulp and paper manufacturing from the cutting of trees in the forests to the use of finished paper by industry are included in the murals recently completed in the Chicago office of Minnesota & Ontario Paper Co. . . . They show views of the Mando mills at International Falls, Minn., Kenora and Fort Frances, Ont., as well as interior mill views and wood storage yards . . . Viewing the murals are Paul Joslin, manager of the Mando Chicago sales office, and Jeanette Anderson, his secretary.

Canadian Carloadings

OTTAWA—Car loadings on the Canadian railways of woodpulp and paper from the beginning of this year until the week ended Jan. 22 reached a cumulative total of 13,233 cars compared with 12,965 cars in the corresponding period last year ended January 24, the Canadian Government has just reported. The Eastern Division accounted for 11,503 cars this year as against 11,281 cars a year ago and the Western Division for 1,730 cars as compared with 1,675 cars last year.

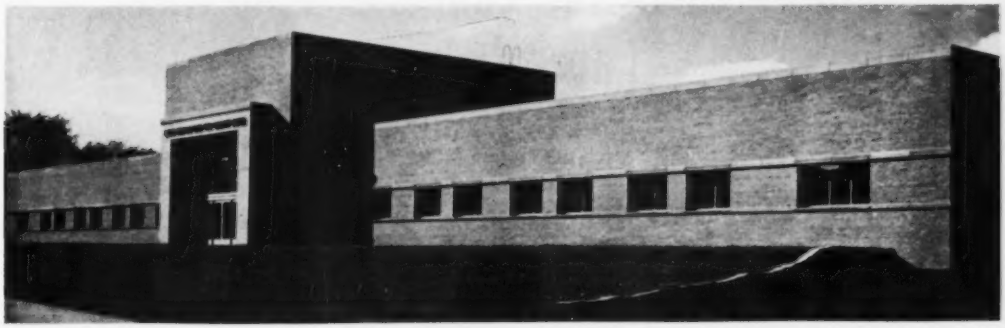
Forestry Ass'n Elections

OTTAWA—Georges Maheux was re-elected president of the Quebec Section of the Canadian Forestry Ass'n., at its 10th annual meeting in Quebec, with other officers elected being: V. E. Johnson, Canadian International Paper Co., Montreal, first vice-president; E. Denoncourt, Three Rivers, Que., second vice-president; Henri Kiefer, chief of the Provincial Protection Service, treasurer; Jules Breton, of Quebec, manager.

Ohio Sec. TAPPI Meetings

MIDDLETOWN, Ohio—Meetings of the Ohio Section of TAPPI are scheduled for February 15, when Dr. Duncan Brown of the Gardner-Richardson Co., will talk on "Calendar Stack Finishes" and March 10, when a panel section will discuss "Let's Talk About Paper Coating". The April 15 meeting will be held on a later date to be announced shortly., H. A. Smith, of the Mead Corp., recording secy., reports.

AUSTIN CO., LTD., ERECTS NEW PLANT OF BRITISH AMERICAN BANK NOTE CO., LTD.



The Austin Co., Ltd., engineers and builders, erected the British American Bank Note Ltd.'s new 90,000 square foot controlled-conditions plant in Ottawa, Canada. . . . Offices, engraving and plate transfer departments occupy this section, which is directly above the large employes' service areas extending across the full width of the main manufacturing floor. Air-conditioning equipment for these areas is located in the high center section, which forms the entrance feature.

Incoming paper for use in the production of bank notes, stock certificates, stamps and other work goes first to this paper storage area, where it is stacked with the aid of a fork lift truck. Here, stock requisitioned for specific jobs is counted before transfer to the drying and wetting room just across the corridor or to other production departments. Note absence of columns in this area.

Paper for use in bank note printing is conditioned in three humidors which open directly into the wetting and drying room. Each of the units is served by a separate installation of cooling and humidifying equipment. Four inches of cork insulation installed in the sidewalls and ceiling has been surfaced with one-half inch of plaster. Cement floor was poured over a two-inch layer of cork insulation.

Vt.-N. H. Frt. Hike

RUTLAND, Vt.—Paper manufacturers in Vermont and New Hampshire were notified on January 29 that a temporary five percent increase in most freight rates in the two states has been authorized by the Interstate Commerce Commission.

The action came as the result of an ICC order of a year ago which prescribed a new formula for figuring freight rates in New England. Some rates, under that formula, were raised and others lowered.

Subsequently, 19 motor carrier operators in Vermont and New Hampshire complained that the reductions were applied most heavily in their territories.

The commission, in its latest action, authorized these carriers to increase by five percent the minimum charge per shipment and the rates applying generally to manufactured goods.

The increased rates affect goods transported between points in New Hampshire and Vermont, and on shipments moving between these two states, other points in New England and the New York City area, and are expected to have a major affect on paper manufacturers in the two states.

The authority is good until the end of 1949, the ICC said.

Seek Collins Mill

NORTH WILBRAHAM, Mass.—Several large paper firms are reported to be interested in acquiring the property of the Collins Mfg. Co., E. H. Thomson, president, said on February 1, but no action can be taken until expiration of an option on the machinery now held by New York investment companies.

At present the plant is inoperative, although there are several foremen and an engineer at work daily. About 50 employes were laid off for an indefinite period last Thanksgiving when officials announced there were no orders ahead and that all existing business was completed.

Mr. Thomson, placed in the paper plant by receivers when the firm suffered business reversals, later was named president.

Woodside Supt's Speaker

KALAMAZOO—The American Pulp & Paper Mill Superintendents Ass'n., will hold its March 17 meeting at Hotel Harris, with dinner at 6:30 p. m.

L. M. Woodside, sales and service engineer of the Albany Felt Co., Albany, N.Y., speaker of the evening, will discuss "The Relation of Felts to Paper and Board Machine Problems."

The Albany Felt Co. will be host to those attending at a cocktail party.

Research in the Canadian Pulp and Paper Industry

By D. W. AMBRIDGE
President—Abitibi Power & Paper Co., Ltd., Toronto

When I was invited to speak to this gathering today I felt that I was perhaps expected to repeat what I have said in public on various other occasions and in various other places on the subject of Research in Canada. Perhaps what I have said before might better have been entitled the "Lack of Research in the Pulp and Paper Industry in Canada."

In thinking over what I was to say here today it occurred to me that there is nothing in particular to be gained by repeating an old theme and that if any good at all was to come from the effort I am making here today it would more likely come if I were to point out some of the things the industry might expect if we were all to take our coats off and go to work on the problems we have in front of us.

Perhaps we should glance for a moment at the past history of research in general.

I had the curiosity to look up the word "research" in an encyclopaedia which I have in my own library. This work in three volumes was published in 1766. I inherited it from one of my forebears and he must have bought it under the influence of the wording on the frontispiece which reads as follows:

"The complete dictionary of Arts and Sciences in which the whole circle of Human Learning is explained and the Difficulties attending the acquisition of every art whether Liberal or Mechanical are removed in the most easy and familiar manner."

In these volumes the word "research" is defined as "A scrutiny or diligent enquiry into anything." The definition goes on to say "Research in music is a kind of prelude or voluntary played on the organ, etc., wherein the performer seems to search or look out for the strains and touches of harmony which he is to use in the regular piece to be played afterward."

I felt that I could hardly improve on this and so I have quoted it verbatim for you.

Any study of the history of research will disclose the fact that the organized search for knowledge is a very recent phenomenon in the story of man on earth. In the greatest industry organized research is in its infancy. By this I do not mean to imply that I am unaware of the work that has been done in Canada nor am I unmindful of the men, many of them, who have spent their lives and their talents in the great work of specialized research in the field of pulp and paper in Canada.

D. W. AMBRIDGE

I am quite aware that many of the companies in our industry are subsidiaries of American companies who do full-scale research work in the United States, but in spite of all this I stick to my point that research in the Canadian Pulp and Paper Industry is in its infancy and is in fact quite undeveloped.

Let us analyze the facts. We must first of all find some yardstick by which we can measure our own stature.

Let us look at the great nation to the South of us, the greatest industrial nation the world has ever known. How is the work of research carried out there? How extensive is the work they do there?

In March 1947 the National Industrial Conference Board published a survey they had made on "Industry's Use of Research." It is well worth reading and I suggest that those of you who can get this particular survey will be rewarded by a study of it.

Briefly, they found that the average industrial company in the United States spends between one and one-half and two cents of its sales dollar on research and development.

Some chemical companies in the United States spend as much as five or six cents of their sales dollar. Some paper products companies spend as much as two cents and some as little as .07 cents of their sales dollars. But the average company in all industries spends, as I have said, somewhere between one and one-half and two cents of the sales dollar.

What do we spend? What is our stature measured by this American yardstick? I am, as you all know, a shy person and I could not bring myself to ask my colleagues so personal a question, and so I was forced to approach the problem in a somewhat different way. I had to use a method which the ancient geometers called "reductio ad absurdum."

If then, we were spending what the average industry spends in the United States, what would this be?

I have roughly calculated that in 1948 the wholly Canadian pulp and paper companies in Canada sold goods with a total value of $500,000,000. Let us reduce this figure by 15 percent just to be conservative.

Now let us say that we should spend only one and one-half cents of our sales dollar. The total expenditure by that section of the Canadian industry whose main research effort is made in Canada should therefore be, by American standards, say $6,400,000 per annum.

Now it is common knowledge that 65 percent of a total expenditure on research will be for the wages and salaries of personnel engaged in research. In other words the annual payroll of the wholly Canadian effort should be about $4,100,000. If we set the average remuneration of a research worker in the industry at $3,800 per year we arrive at the rather startling fact that we should have in our employ something like 1,100 research workers. How many do we actually have on our payrolls?

I made a survey based on various figures and facts which are available and I find that in 14 companies there are presently employed a total of 223 research workers, both graduates and technicians. Of this total nearly 100 are employed by a single company in this group of 14.

Excerpted from an address delivered at the 35th Annual Meeting of the Technical Section of the Canadian Pulp & Paper Ass'n., Mount Royal hotel, Montreal, Canada, January 27, 1949.

And so I come back to my original statement and say firmly that research in the Canadian pulp and paper industry is quite undeveloped and is in fact barely beginning. I have substantiated this statement to my own satisfaction and I hope you will agree that my contention is not too far wide of the mark.

I am only too conscious of the fact that we cannot set this state of affairs right the day after tomorrow. We are going to have to employ competent persons by the hundreds and they simply are not available. For years the type of young Canadian who has the talent, training and interest for research has gone to the United States where he invariably finds opportunities for which he looks in vain in his own country.

The building of an adequate research staff in the industry is going to take years, but delay in making a start is not going to bring the results we must have. We have a national responsibility which we must discharge and we must begin to do so now, her and now.

All of this makes it pretty clear that the Canadian pulp and paper industry is, to say the least, not in the forefront of the great industrial procession fighting its dogged way to new knowledge.

What are the reasons for this?

In approaching this problem we must be guided by common sense. Descartes, the famous French mathematician of the 17th Century, once remarked that common sense is the most equitably distributed of all valuables because no one seems to want more of it than he already possesses. Assuming, therefore, that we all of us have a satisfactory share of this priceless ingredient of character, let us find what are the forces that have restrained our industry from joining wholeheartedly in organized research.

First, it seems to me that the outlook and ambitions of the industry have been very much influenced by the fact that only newsprint and pulp can enter the American market duty-free. This makes it more difficult to visualize markets for new products to which extensive research might lead.

Secondly, of course, the industry, "cabin'd, cribbed, confined" for practically its whole history to pulp and newsprint, went down into the depths of receiverships and reorganizations which were not conducive to the setting up of research facilities or the prosecution of long-range developments.

Thirdly along came the war which effectively diverted manpower and electric power away from pulp and paper production and threw the industry into another tailspin of restrictions, government controls and other horrors. So, all in all, our lack of progress is not without its causes, many of them beyond the control of the leaders of the industry.

Let us, therefore, turn our backs to the past and go forward into the future with all the energy, intelligence and enthusiasm of which we are capable.

What does the future hold for us and how are we to rid ourselves of these shackles of the past?

The Tariff Situation

First let me deal briefly with the tariff situation. So far as I have been able to learn, the American tariff barrier does not prevent any Canadian company from establishing a branch plant in the U.S.A., for the purpose of making a worthwhile product based upon raw materials from Canadian sources. As far as I know the only reason that branch plants of Canadian pulp and paper companies have not been set up across the border is that very few Canadian companies have felt equal to the task of developing worth while products which would be saleable in the U.S. There are a few honorable exceptions which you all must know about. But in general the American companies have been the first to come to Canada to set up sources of raw materials for their enterprises in the U.S.A.

I venture to suggest that the lack of organized research in Canada is largely to blame for this extraordinary state of affairs.

Past Financial Difficulties

The financial difficulties of the industry should be a thing of the past if the industry's leadership is competent. Earnings for the past few years have been reasonably satisfactory and the old burden of an intolerable funded debt has been in most cases substantially lightened. The Canadian pulp and paper companies are, therefore, ready (or they should be) to embark upon a phase in their history where research will play a paramount part. It might even be said that unless the great tool of research is used and used vigorously the full development of the national forest wealth will never be brought about by Canadian brains and Canadian energy.

Someone may say to me — "Yes, let us admit the validity of your statistics. Let us say that these American industries can spend these huge sums on insuring their future. But tell us what can we do. Tell us what we users of wood for newsprint and pulp can spend our money on. Why should we? We are in a different industry."

I am not implying that anyone in this audience ever had any such doubts in his mind and I am not implying that anyone in this room need be persuaded that his future and the future of the industry depends on how we develop and change it. But these thoughts are expressed by the public, by shareholders in the industry, by bystanders, and it is vitally important that Canadians as a whole should be determined that what needs to be done to develop our industry will be done.

I get letters every day from shareholders who ask why this or that is not done by my company. I listen to the demands of labor every year, or nowadays, even twice a year.

I have yet to get a letter from a labor leader or from a shareholder or from a bystander asking when we are going to spend adequate sums on research. I am praying that some day an income tax official will address such a question to me.

What Can Research Do?

What is there that research can do for the Canadian pulp and paper industry? What is there that it can do?

Well, gentlemen (and I am speaking now to the Canadian public who own the raw materials on which we base our huge enterprises), there are millions of trees which die each year from age or from disease or are killed by fire. These dead trees have never been given the chance to add themselves to the economic wealth of the nation. Some of them must die unused. They are too far from the world, but millions and millions of them should never have perished. What are we doing to protect them from fire and from disease and from old age and so save them for the cutter's saw? Should we not make a "diligent inquiry" into this? Such an inquiry is research in its true sense.

Ought we to be satisfied with our present knowledge of fire suppression methods? Are there no better ones? Are we to be content (or perhaps indifferent is a better word) with the present abysmal ignorance of the prevention and cure of forest diseases and insect infestations. How many companies in the industry are really doing anything about these scourges? Governments are moving to study the serious infestations, but the total amount of effort in the battle is not nearly enough.

How many birch trees, poplars, maples, die of old age in our forests today because we pass them by denying them their right to be added to the national heritage?

We cannot be content with our present methods of using our forest wealth. We have been selecting what we in our undeveloped industry can most easily use and this has got to stop.

We must make "diligent inquiries" into the matter of how we can use everything that the forest grows for the development of the human standard of living.

Cataracts of liquors from our chemical processes are running to waste, carrying with them untold quantities of various materials which will some day be used. When, gentlemen? Why not soon?

Mountains of bark are lying unused beside mills. Some bark is burned in a half-hearted way, with little resulting value to anyone. Some bark is being used, but still very little. In

SMITH & WINCHESTER UNDERCUTS AT WEYERHAEUSER

Two 84 inch Smith & Winchester undercut trimmers recently were installed in the Everett Mill of the Weyerhaeuser Timber Co., Everet, Wash., for accurate trimming of pulp on a production basis. The machines are equipped with power back gauge, two-hand starting and illuminated index tape.

Europe, where materials are not in such profuse supply, bark is a valuable ingredient in a variety of products. When are we to begin to find a use for it?

There are hundreds and hundreds of small sawmills in this country that hack away at small logs making lumber. Are we to be content to see six- to eight-inch logs go to sawmills there to be converted into boards with a consequent waste of 50 percent of the wood in the tree?

Are we to be content with the appalling waste which goes on when that lumber is finally used? You have all seen what happens to the lumber used by the construction industry for its concrete forms. How many fires are lighted by contractors every year when they clean up a job?

Right in the sacred precincts of our own mills we have gone on year after year using the same old methods and the same old machinery.

We are content to supply the publishers with the same old product, slightly improved perhaps, but essentially the same old product on which to print their newspapers.

Gentlemen, I need not ask the question here in this room, "What can research do for the Canadian Pulp and Paper Industry?" Rather let me sketch for you a picture of what the industry will look like say 30 years from now. I am drawing on my imagination, but that is the only real fun which people of my age have left to them.

The Industry in 1979

Let us suppose that the ghosts of some of us here today get leave to revisit the scenes of their life on earth. These ghosts presumably would hike straight for the North country where, alighting from their jet transport plane at dawn, they might easily come upon a woods camp.

This camp looks like the encampment of an armored division. Men leap lightly from their Ostermoors, swallow a quart of orange juice recently flown from Florida, eat a handsome dish of whatever their hearts desire and proceed to their machines. A column of vehicles sallies forth into the wintery bush. Mature trees of all species marked beforehand are cut quickly by machine saws, lowered carefully, stripped of their limbs, sorted and placed upon vehicles which proceed without further ado to the river bank or the railway siding. A clean-up crew follows the cutters, harvesting and chipping the limbs which are blown into special containers and later hauled to the railway sidings for shipment to the mills.

The area on which our armored column has been working is left at the end of a day stripped of the mature trees, cleaned of all slash and ready to provide the best conditions of growth for the young trees which are left and for the seeds which are germinating.

Now let us look at the mills. They are no longer recognizable to the spirits of the departed papermakers who have chanced that way in their ghostly wanderings.

Logs entering the mill are sorted as to species by selective electronic mechanisms, stripped of their bark which is carefully diverted to its proper destination. The barked logs are then treated chemically to prepare them for grinding, ground carefully and the resulting slush is screened and sent directly to the paper machines. Here our ghostly papermakers really rub their eyes. An enormous drum is revolving rapidly, housed in a huge hood from which emerges a strange sound as of high pressure nozzles spraying the pulp slurry on the surface of the drum. After the drum come a few dryer cylinders completely enclosed in a huge casing in which there are apparently some arrangements having to do with infra-red rays, high frequency sound waves, and other strange devices. A sheet emerges from this casing and is promptly sprayed on both sides with a quick-setting plastic and wound into rolls. All this at a speed of not less than 3,000 feet per minute.

Our ghostly papermakers still do not believe it and they go to the yard. Here they find a huge building known as the lumber mill, where the shipped limbs (which you will remember were shipped from the bush) are arriving by the trainload. This material is combined with the bark, shredded, mixed with a highly secret mineral slurry, formed, pressed and baked into sheets of varying dimensions, then cut into suitable sizes for building lumber, sheathing, insulating board, etc., etc.

The ghosts walk further still and come to the chemical mill. Here logs of various species are chipped and fed to a long line of smallish vessels or digesters under remote control, where the wood is subjected to chemical treatment which separates the cellulose from the ligneous matter. The cellulose is washed free and sent to further chemical mysteries. The lignin temporarily in solution is precipitated and separated, washed, dried and bagged to be shipped to the manufacturers of various products. The sugar solutions are further treated, fermented, separated and distilled. Great drums of a long list of chemicals are to be seen in the shipping shed on their way to market.

Not Beyond Accomplishment

Does anyone believe that this picture I have tried to paint for you cannot come to pass? I can assure you that many parts of this picture are actually in existence now but perhaps not all in one place.

Does anyone believe that these "strains and touches of harmony can ever be used in the regular piece" without the most vigorous use of organized research?

This is perhaps a faint picture of the future, but faint though it may be it inspires me, as I hope it will you, with a great confidence in what is to befall the way of life we call the pulp and paper industry.

Let us dedicate ourselves to the consummation of these objectives. Let us remember to be patient; let us have courage to persevere; let us not count too strictly the day to day cost of the research work we do. Let us remember that, in the immortal words of Hamlet—"Thus conscience does make cowards of us all; and thus the native hue of resolution is sicklied o'er with the pale cast of thought; and enterprises of great pith and moment with this regard their currents turn awry and lose the name of action."

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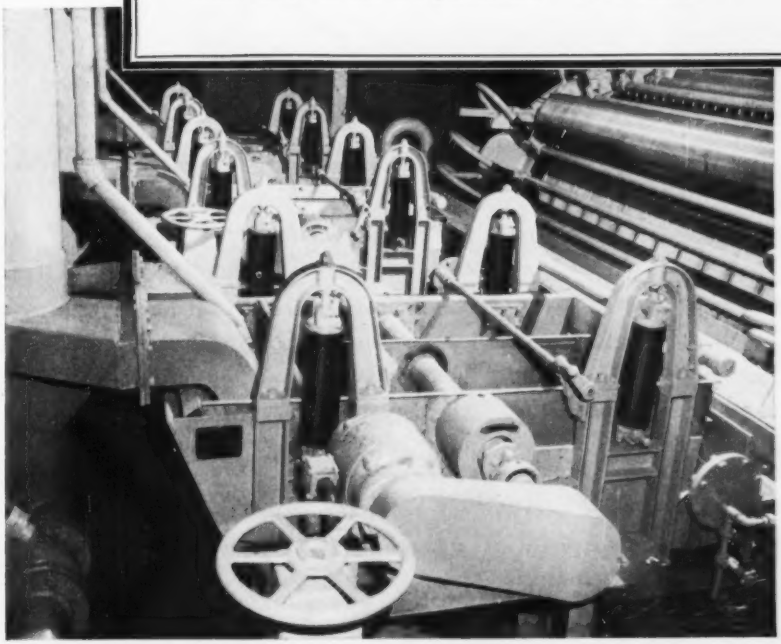
Close to fifty million pounds of pulp per day are now being put through

BIRD JONSSON SCREENS

That takes in everything from the coarsest stocks, knotted by Jonsson Screens, to the finest, with Jonsson Screens equipped with slotted plates.

Jonsson Screens turn out good, clean stock and lots of it per Screen per day, with negligible loss of fibres in the rejects. They handle stocks of relatively high consistency. They are very economical to operate.

May we submit recommendations and estimates?



This neat, compact Jonsson Screen installation is delivering brown stock to a washer. Totally enclosed, submerged inlets and smooth screening action with almost totally submerged screen plates do away with foaming troubles. The stock is delivered to the washer free of knots, shives and chips. High washing efficiency, uniform drying and maximum black liquor recovery is assured.

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This is the latest link in Diamond Alkali's expanding chain of producing centers paralleling the country's industrial development. It is the 12th Diamond plant . . . and the fourth to produce both chlorine and caustic soda.

Other Diamond products for the pulp and paper industry include soda ash, calcium carbonate, chrome salt cake, silicates and chlorowax. Back of them is an aggressive research organization.

If you are looking for a dependable source of supply for these products, or have a chemical problem in your business, we welcome your inquiries.

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35th Annual Meeting CPPA Technical Section

ABSTRACTS of PAPERS

Delivered at Mount Royal Hotel, Montreal, Can., January 26-28

Wheat Straw for Improved Paper and Board Products

ELBERT C. LATHROP

Head, Agricultural Residues Division, Northern Regional Research Laboratory, Peoria, Illinois

The practicability of producing straw pulps suitable for various types of paper and board is discussed. Cooperative efforts of the strawboard industry, the farm equipment industry, and the Northern Regional Research Laboratory have brought about improvements in procurement of straw and in technical and process control of strawboard manufacture. The increasing availability of relatively low-cost, one-man balers and the cooperative educational campaign on straw collection are bringing the straw supplies ever nearer to the mills. The large annual straw production indicates no possibilities of straw scarcity in the foreseeable future—in contrast with the pulpwood situation.

Data are presented to show the technological and economic feasibility of producing high yields of strong, easy-bleaching straw pulps for blending with other paper making pulps in the manufacture of fine specialty papers. No major changes in present pulp mill equipment are required to produce this straw pulp. The advantages of blending straw pulp with other paper making pulps are discussed.

Pilot plant production of insulating building board from straw is described. A superior product is made by blending long-fibred straw pulp with regular lime-cooked pulp, to form an insulating building board with increased ruggedness, particularly impact strength.

The increase in paper and board consumption, attendant upon the general raising of living standards the world over, should result in increased utilization of annual crop residues.

E. C. KIRBY
Price & Pierce, Ltd.
Chairman, Session "B"

Essentials of a Sound Industrial Relations Program

JAMES E. VALLILLEE

Ontario Paper Co., Limited

Industrial Relations is that complex of management attitudes, policies and procedures which largely determine whether or not an employee is efficient and happy at his work, and the profession of industrial relations is the art of promoting the proper human relationship which should exist wherever people work together, whether it be in factory, office, in a mine or on a farm.

There has been great devotion to technical progress and it is frequently argued, and not without just cause, that a disproportionate amount of time and money has been spent on the study of technical developments as against the development of human resources and the study of human problems.

With the realization that the industrial relations function is at least equally important to finance, production and sales, and inspired by a sincere desire to promote good employee relations, enlightened management recognizes that industrial relations is an indispensable part of general management.

The application of industrial relations is solely the responsibility of the executives in the operating departments, and it is their responsibiilty to ensure that their subordinates in the line management practice and observe all industrial relations policies and practices in their day-to-day contact with the employees whom they supervise. The real human relations work is done by the men responsible for production, and it would be a grave mistake for top management to assume that the application of the industrial relations program is a responsibility of the personnel department, or that the function should be centralized either at the top or at some intermediate level of management by assigning responsibility to a personnel executive.

The most important function of the personnel executive is to advise management in the formulation of industrial relations policies, to correlate and prepare for top management adequate and comprehensive information on attitudes, opinions and recommendations from all ranks of management with respect to industrial relations problems, to suggest the adoption of new policies or recommend changes in existing policies designed to solve these problems on a sound basis. It is also the responsibility of the personnel executive to implement these policies, to develop methods of control, and keep top management informed whether policies are being followed throughout the company.

C. E. TURNER
Building Products, Ltd.
Chairman, Session "A"

F. L. LA QUE
International Nickel Co.
New York City

Wood Handling Equipment at Bathurst

H. W. BUZZELL
Dominion Bridge Co., Ltd.

Improved methods of handling pulpwood have been developed at the Bathurst Power and Paper Company's mill at Bathurst, N.B., in order to achieve greater flexibility of sorting and distribution of the wood in the mill at reduced costs.

By means of the equipment, wood stored in the river can be reclaimed by a "floating haulup" and delivered to a new mill building. Here, within a concentrated area, it may be barked, sorted and distributed to chippers or yard storage as desired. The unique pieces of equipment which are the essential core of the operation, are two circular, concentric, steel rotating tables onto which the wood is discharged and then distributed through various chutes to the barkers, chippers or storage as required.

Recent Developments in Welded Barking Drums

GEORGE M. DICK
Manager of Engineering, Canadian Ingersoll-Rand Co., Ltd.

The welding of steels by the electric arc method has through the years gradually advanced from the somewhat indefinite status of an "art" to the more definite category of a "science" and there is little wonder that the pulp and paper industry should show such keen interest in the possibilities of utilizing the every increasing benefits of welding wherever possible.

The important position occupied in the flow sheet of most pulp and paper mills by the bark removal apparatus renders it justifiable that the industry be inclined to favour more consideration towards the adoption of welding technique in the fabrication of barking drums. It is with this trend in mind that we have taken the liberty of preparing a paper incorporating a number of investigations which we made on this subject and which have culminated in the design and construction of a new type of welded barking drum.

For many years, barking drums were constructed largely by securing a number of longitudinal and circumferential members by a series of rivetted connections. In some cases bolts were used. The introduction of welding as a means in the design and construction of a barking drum shell is a much more recent innovation.

In this paper, the discussion of welding in barking drums will be restricted to barking drum shell construction only and supporting apparatus will not be included although the use of welding in barking drum supporting units is now gaining favor.

We would also mention here, that in this paper no attempt will be made to approach the subject from a strictly mathematical or "strength of material" viewpoint. Instead a resume of design approach will be given from a contemporary angle basing our final design decisions on practical evaluations of existing experience and endeavouring to utilize the technique of welding and its many advantages to improve existing design features rather than to branch out into new unexplored design fields.

Corrosion in the Manufacture of Alkaline Pulp

F. L. LA QUE
and
K. H. J. CLARKE
International Nickel Co., Inc.

The behavior of several types of steel, cast iron and corrosion resistant alloys, when subjected to various corrosive conditions in alkaline pulping processes, is described.

Corrosion in Digesters

As a general rule, ordinary steel demonstrates satisfactory resistance to corrosion by either sulfate or soda cooking liquors or by soda cooking liquors modified by the addition of elemental sulfur. There are records of steel digesters remaining in satisfactory condition after service for over twenty years and a survey some years ago indicated an average life of 15 years.

The good resistance of steel to corrosion by alkaline cooking liquors is probably due in large part to the development of adherent films (most likely sulfides) which are protective against progressive attack. Wherever or whenever such films fail to form, or are destroyed quickly, appreciable corrosion may be expected. For example, weld deposits may not form or retain films as readily as the steel plates. This, therefore, would account for occasional relatively rapid corrosion of steel welds. Similarly, erosive forces associated with high velocity or turbulence of liquor flow may serve to destroy protective films.

There are circumstances where corrosion of steel in digesters is serious. For example, some of the woods used on the West Coast, especially cedar and fir, and some gummy woods used in the South, have been associated with severe corrosion of steel involving rates of attack reported as high as ⅛ inch per year. In addition to effects on the corrosivity of the liquors, there is reason to believe that some woods release organic acids which, of course, exert their corrosive effect in the digester vapors. Under these conditions Inconel and stainless steels 347 and 316 are much more resistant than mild steel.

Some consideration has been given to the construction of digesters in which either an acid (sulfite) or alkaline (sulfate) cooking process might be carried out—or perhaps some combination of the two in sequence. Since the sulfite cooking liquors are more corrosive than the sulfate—resistance to corrosion by the former becomes the controlling factor in choosing the alloy to be used. In effect, this reduces the choice practically to either extra low carbon Type 316 stainless steel (0.03% max. carbon) or to a columbium stabilized modification of the standard Type 316 composition. Inconel is not sufficiently resistant to attack by sulfite cooking liquors to recommend its use for digesters where these acid, as well as alkaline liquors may be used.

The choice of composition of stainless steel to be used in alkaline pulping digesters is likely to be determined by factors other than resistance to corrosion by the alkaline liquors themselves. Type 316 alloy is well known to be much more reliable than Type 304 in resisting attack by organic acids (such as may be released from some woods) and is, of course, the preferred alloy for use in contact with sulfite cooking liquors. Since there is considerable current interest in cooking processes involving the use of both alkaline and acid sulfite liquors, and since such use of acid liquors may increase in the future, it appears that the extra low carbon Type 316 would be warranted except where there is definite assurance that corrosive organic acids or sulfite liquors will never be encountered. For these particular conditions Inconel would represent the first choice of material, and Types 347 or 321 stainless steel the second choice, with the more expensive Type 316 also being adequate, but not required.

Corrosion of Auxiliary Equipment

Best results in liquor heaters have been obtained with Stainless steel Type 304 and Inconel. For diffusers, Inconel, Stainless steel Type 304 and Monel are all being used successfully. Nickel cast iron grids have given excellent service and Ni-resist should be better.

For vacuum washers, Inconel, stainless steel type 304, Nickel and Monel all give excellent results.

Numerous tests and practical experiences have shown that, as with cooking liquors, the chromium nickel alloys—stainless steels and Inconel—provide maximum resistance to corrosion by black liquors and their vapors.

A New Electronic Sizing Tester

FREEMAN W. ELLIOTT

Paper Control Superintendent, Howard Smith Paper Mills Limited, Cornwall, Ont., Canada

The instrument as now designed consists of three main parts, a control box containing the electronic tubes and relays, the cup for holding the paper sample and electrolyte and an electric stop clock (See Fig. 1). The current used is 110 volt, a.c. and the voltage is kept constant by means of a voltage stabilizer. The electrolyte is generally a saturated solution of calcium sulphate but other solutions may be used.

The apparatus for holding the paper sample consists of two stainless steel cylinders 2¼ in. in diameter (See Fig. 2). At the upper end of the bottom cylinder are twelve perfectly flat terminals ¼ in. in diameter, the ends all being in an exact plane. Since each terminal is the end of a low-voltage electric circuit connected to a tube and relay, there are twelve distinct circuits, each having a green pilot light on the face of the control box. The upper cylinder contains a cup having twelve ⅛ in. holes in the bottom, as shown in Fig. 3. This cup is made so that when it is dropped onto the lower cylinder the twelve holes fit exactly over the corresponding twelve terminals. The bottom surface of the cup is carefully machined to an exact plane. The sample is inserted horizontally between the top of the bottom cylinder and the bottom of the cup. There is an insulated contact point, inside the cup, ⅛ in. above the bottom so that when this cup is in position for a test and the electrolyte poured into it to a depth that will reach the contact point a current commences that starts the stop clock.

Material Handling in Specialty Paper Mills

D. D. HALL

The E. B. Eddy Company, Hull, P.Q., Canada

The .38 cent increase in the hourly wage of handling labor since the war has resulted in the advancement of mechanical handling in all industry.

W. C. R. JONES
Howard Smith Paper Mills, Ltd.
Chairman, Session "C"

Engineers realized that this would result in a 76 per cent increase in cost of handling because no more work per man hour could be obtained without mechanization. In fact, a day's work in the man handling department is reported to have shrunk. Labor demands work saving equipment and shuns the "bull" gang.

Management of paper mills is becoming conscious of the fact that from 8 to 10 per cent of its payrolls go for material handling. It has been realized that in a mill having an annual payroll of $1,000,000, $80,000 to $100,000 is spent on something which does nothing to convert wood into specialty paper—its is just spent on moving material around. Obviously, the cost sheets for the mill where man handling still is in vogue, show instead of $80,000 to $100,000 for handling, $140,000 to $176,000, or from $60,000 to $76,000 per year increase. As most types of handling equipment increase the day's work of a man at least by 200 per cent or makes it possible for one man to do two men's work, the saving by mechanization is 50 per cent. Thus equipment which costs $30,000 in the above mill can pay for itself in one year. The mill with a $5,000,000 payroll and no mechanized handling can afford to allocate $150,000 for equipment, and expect to save enough in one year to pay for it. As stated above, management has appreciated the big "kitty" that is available through mechanizing handling and I doubt whether there is a mill in operation today which has not installed modern handling equipment or is in the process of so doing. The usual method used by management to systematically investigate the best way to "clean up" on this "kitty" is a material handling survey by industrial engineers and time study men.

Steam Jet Refrigeration System for Sulphite Acid Making

W. K. VOSS

Ontario Paper Co., Ltd.

During the hot summer months when surface water temperatures may rise as much as 30 to 40 degrees F, many sulfite mills have difficulty maintaining acid strength due to the lower solubility of SO_2 gas in the warmer water. This often results in a substantial decrease in production.

The installation of a refrigeration unit in the Sulphite mill of the Ontario Paper Company at Thorold enabled the company to go through the summer with no loss of production. This is a Canadian Ingersoll-Rand steam jet unit having a capacity of 150 tons of ice per day. The following table shows some of the changes resulting from the use of this machine by comparing conditions in July 1947 before installation July 1948 after installation of the unit.

	July 1947	July 1948
Sulfite Pulp Production tons/day	153	199
Water Temperature	75°F	50°F
Cooking Acid strength % total SO_2	5.51	8.27
Cooking Acid strength % Comb. SO_2	1.49	1.44
Sulphur consumption lbs./ton of pulp	255	208
Limestone consumption lbs./ton of pulp	351	289

Curlated Pulp—A New Approach to Pulp Processing

H. S. HILL, J. EDWARDS and L. R. BEATH

Price Brothers & Co., Ltd.

A permanent change in the shape of pulp fibres is obtained by causing nodules of high consistency pulp to roll in changing directions between two surfaces which compress the nodules while they roll. The change in shape is towards more bends, kinks and twists and a more tubular cross section. The manipulation also exerts a powerful deshiving action.

The process causes a change in all pulp properties and, while there are many degrees and variations, the effect in general is towards a softer pulp and thus is somewhat opposite from the effect of beating. Freeness tends to rise. In appearance, sheets of the treated pulp take on a more even-textured, matte look. The process effect is in evidence applied at any degree of beating, and to some extent persists through subsequent beating. The process effect resembles that of drying in regard to strength properties but differs for

F. J. GIFFEN
Canadian International Paper
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stretch, drying tending to lower stretch and the process to increase it strongly. The process widens the range of quality obtainable from a given pulp, and also permits entirely new combinations of pulp properties, thus indicating a wide variety of possible applications. Among other things, it may permit a higher pulp yield for many conversions.

"The Curlator" Its Application to High Yield Newsprint Sulphite Preliminary Report

FRANK P. SILVER

General Superintendent, Price Brothers & Company, Limited, Riverbend, P.Q.

The Curlator, a radically new type of pulp processing equipment, is described. An account is given of its first commercial trial, which was in a hook-up in a newsprint sulphite system to permit an increase in pulp yield. The Curlator was put on the screen rejects in a closed ssytem, and then the digester yield was increased in steps until the amount of rejects reached the full capacity of the Culator to treat them properly. About 10 per cent increase in yield was obtained, with practically all of the digester yield accepted to newsprint. The results were entirely satisfactory from operating and quality standpoints, and the equipment and method were thoroughly proven out during eight months of steady operation. The Curlator treated 30-45 tons of screen rejects per day at 1 to 1½ h.p./da. ton. On the basis of the present trial, materially higher yields are envisioned, with Curlators treating the whole sulphite stock.

Modernization of Smaller Groundwood Mills

HENRY J. PERRY

Consultant, New York City

Competition is becoming a factor for the first time since the war. Due to this added complication, mill operators must become sales minded and their efforts must be directed toward sales development within their own sphere of activity.

The most important problems facing small groundwood mills are: 1, Cost Reduction, and 2, Quality Control.

In cost reduction work a very detailed study must be made of each step in the process and each machine. The results will indicate what can be done with the present equipment before radical changes are justified. Suggestions are made on proceedure and methods of improvement.

For quality control a simple adequate system is necessary. It must be designed to fit the need of the mill from a cost and quality standpoint. Suggestions are made for setting up the proceedure.

Correlation of the Board Committee Test for Surface Oil Resistance of Paperboard with the Results of Gloss Ink Printing

S. M. CHAPMAN

Research Associate, Pulp & Paper Research Institute of Canada

In the printing of paperboard with gloss inks, trouble is frequently encountered with poor or uneven gloss. These inks dry mainly by oxidation of the vehicle and obtain their gloss by drying this vehicle to a smooth shiny film. If, however, the vehicle penetrates deeply into the surface of the paperboard before drying then little or no gloss will be obtained. For the best results it is therefore essential that the board surface present considerable resistance to the penetration of the vehicle.

It is not convenient to use a gloss ink vehicle to test the board surface since such a liquid would obviously oxidize with time and change in viscosity and other properties, making it difficult to correlate day to day readings with the expected behavior of the board. Working on the assumption that the penetration of the oil vehicle can be predicted by a test for the resistance to penetration of a stable mineral oil, the Board Committee of the Technical Section, Canadian Pulp & Paper Association some time ago introduced a method for determining the surface oil resistance of paperboard as a means for evaluating its suitability for gloss ink printing.

Briefly, the Board Committee Test (1) requires that a drop of a standard mineral oil be placed upon the surface of the board under standardized conditions. This oil drop is then spread out into a thin film by allowing a heavy roller to run down an inclined plane, passing over the oil drop. As the roller passes over the oil drop a stopclock is started. Using a Photovolt model 660-P photoelectric glossmeter, the gloss of the oil film is determined. This gloss is at first approximately 100 per cent as it represents an unbroken liquid film but as the oil penetrates into the surface of the board the liquid phase gradually disappears and the gloss consequently decreases. When the gloss reading reaches a value half way between 100 per cent and the gloss of the original board surface which has been determined previously, the end-point is reached and the stopclock stopped. This time is corrected for the prevailing temperature by means of a correction chart based on the temperature-viscosity relationship for the oil. All readings are thus corrected to 73° F.

Some Factors Influencing the Accuracy of Mullen Testers

N. G. M. TUCK and S. G. MASON

Research Associates, Pulp and Paper Research Institute of Canada

The variation of pressure with time in Mullen burst tests on paper was determined by taking pictures of the motion of the gauge needle at 64 frames per second. It was found that the pressure increases at an increasing rate to a maximum at burst and then decreases suddenly. The rate of change of pressure over a short period before the

G. A. FRANKLIN
E. B. Eddy Co.
Chairman, Session "E"

burst occurs in constant, and is proportional to the burst pressure for any one gauge and for a variety of paper samples. The proportionality constant is determined by the gauge expansibility.

The expansibility of a number of gauges in use on Mullen testers was measured, and a variation of from 0.6×10^{-3} to 6.4×10^{-3} cc./lb./sq. in. was observed. The gauge expansibility has a marked effect on the rate of straining of the sample during a burst test. This in turn can influence the burst pressure. To eliminate this source of variation, the gauge expansibility should be specified in the standard test method.

The effect of air in reducing the burst pressure has been studied. A simple method for detecting air in the Mullen tester is described. The removal of air is greatly facilitated if ethylene glycol is used instead of glycerine.

From the data on the rate of loading, a theoretical analysis of the dynamic errors in gauges has been made. The errors are of three types and arise from friction, vibration and overshooting of the needle mechanism. The cumulative dynamic error is of the order of 2 per cent, and is due mainly to overshooting. If accuracy better than 3 per cent is sought, the gauges should be calibrated under dynamic loading conditions. A method of doing this is briefly described.

Tensile Strength with a Modified Mullen Tester

R. M. OWEN

Control Superintendent, Iroquois Falls Division Abitibi Power and Paper Company, Limited

The relationship of Mullen burst, tensile strength, and per cent stretch of paper is reviewed.

The need of quick and simple method of determining the relative tensile strength of newsprint in the machine and cross directions resulted some years ago in the development of a slight modification in the ordinary Mullen test. This modification consists in the use of an oblong aperture to replace the circular aperture in the Mullen tester tripod.

The limitations and errors involved in this test are discussed. It is shown that the modified Mullen tester gives results which are in close proportion to the actual tensile strength.

This test has been used for some years in several newsprint mills in grading the strength value and uniformity of the paper.

DR. J. EDWARDS
Price Bros. & Co.
Chairman, Session "F"

Groundwood Mill and Screen Room Heating and Ventilation

S. CLARK

Steam Control & Meter Engineer, Thunder Bay Paper Co., Ltd., Port Arthur, Ont., Canada

This paper describes the heating and ventilating systems installed in the groundwood mill and screen room at Thunder Bay Paper Co., Limited by Ross Engineering of Canada a year ago.

Numerous difficulties have been encountered and overcome until it is now considered a model system. The instrumentation feature of the system is unique since it is the first time that Ross Engineering has designed a complete system using the modern indicating and recording pneumatic temperature controllers. The instrumentation on the system is Foxboro.

By a discussion of the system in use at this mill, its problems, and how they have been overcome, the author has shown what can be accomplished by a properly designed heating and ventilating system.

The system was designed to accomplish the following: a complete grinder exhaust eliminating steaming both on the charging floor where the magazines are loaded and on the grinding floor; a screen room exhaust over the three Oliver filters; an exhaust over the bull screen; cooling air for five, 5,000 h.p. electric motors; grinder and screen room heating and ventilating.

Magnesium Cathodic Protection To Inhibit Corrosion of Bronze Facing Wires on Groundwood Deckers

R. D. DUNCAN

Canadian International Paper Co.

Some of the basic principles of metallic corrosion are described. A mill installation is described in which magnesium anodes are used to provide cathodic protection for the facing wires of groundwood decker cylinders. Results show a substantial improvement in wire life.

Cathodic protection defines that method of corrosion control in which current is impressed on the surface of a metal to prevent or inhibit electrochemical attack, the metal being made cathodic. In its application, if sufficient current is applied through an anode to suppress that generated by the most anodic area on the metal surface, no current will flow from point to point on its surface and corrosion will cease. The mechanism of cathodic protection has been described in detail by Mears.

In cathodic protection, the source of the impressed current is immaterial. It can originate from one of two sources: (a) generated electrical current, using an anode of scrap metal or carbon; and (b) a galvanic couple, choosing a metal much lower in the electromotive series so that it will serve as an anode and a strong current will flow to the corroding metal. The choice of source is determined by economics.

From the electromotive series table, the favorable position of magnesium as a choice of anodic metal for cathodic protection will be evident. Since the metallurgical developments of recent years have made the metal available in bulk, it has found widespread use. Magnesium is now used to protect such buried equipment as pipe lines and tanks and, more recently, domestic and industrial hot water tanks.

Harland Sectional Electric Drive as Applied to Paper Machines

R. J. SPENCER-PHILLIPS

Manager, Harland Drive Department, Bepco, Canada, Ltd.

This paper gives the essential requirements of a sectional electric drive and explains the method utilized in the "Harland Drive" for obtaining: (1) a signal of any speed eror, (2) a constant speed reference, (3) how the signal thus obtained is converted to give the maximum sensitivity to the driver. The system of tension control for the reel section is explained and also the means for obtaining adjustment of "draw" between different sections. The question of starting and accelerating each individual section is discussed, together with the type of generating

equipment found to be the most desirable for different types of paper machines. An explanation is given as to how "crepeing" is provided for when required. Finally, a vision of the future is outlined.

Hypothetical Application of a Heat Pump to Paper Machine Dryers

J. P. WOODS
Consolidated Paper Corp., Ltd.

At the request of the heat and power committee the author developed a hypothetical system for using a heat pump to reclaim the heat that is now being wasted in the exhaust from a paper machine hood.

This hypothetical system would require that the dryer system be completely enclosed similar to Minton Vacuum Dryer. However, instead of operating in a vacuum it would have a positive pressure of about .5 PSIG. It would be necessary to exclude all air from the system before returning the reclaimed steam to the dryers.

A centrifugal pump would compress the hood exhaust steam to 50-55 PSIG at which pressure it would be used in the dryers.

Of course there are many obstacles to be overcome before such a system could be put into operation. However, the efforts, if successful, would be well rewarded since it is theoretically possible with such a system to reduce steam consumption, for paper drying, to about 25 per cent of the present requirements.

Pioneering with 60,000 Lb. Steam Generating Plant Fired by a Detroit Rotograte Spreader Stoker on Low Grade Lignite

M. W. TURNER
Resident Engineer, Manitoba Paper Co., Ltd., Pine Falls, Manitoba

The mill of the Manitoba Paper Company at Pine Falls, Manitoba, has a groundwood mill, sulphite mill and two paper machines producing 350 tons of newsprint per day. When the mill was built in 1926 there was an abundance of surplus electric power available for steam production from 5 nearby hydro-electric developments. Consequently the mill was equipped with two 15,000 KW electric boilers and one refuse burner to supply the 120,000 lbs. per hour of steam required.

The steam demand has now risen to 130,000 lbs. per hour and the supply of surplus electricity has been greatly reduced due to the unexpected demand for primary power in Manitoba. At times the surplus power supply drops to zero.

To remedy this situation, a Babcock & Wilcox Boiler equipped with a Detroit Rotograte Stoker Designed to burn low grade Saskatchewan Lignite or Alberta bituminous coal was recently

JOHN BUSS
Provincial Paper, Ltd.
Chairman, Session "G"

installed. These are the only fuels which can be shipped to the mill at a reasonable transportation cost.

A description of the installation together with a report of the first few months of operation is included. The results obtained are apparently very satisfactory with steam being produced at a cost of 42.3c per 1000 lbs. with lignite and 55.5c per 1000 lbs. with Alberta bituminous.

Use of Calcium Hypochlorite Solution for Slime Control

R. STAFFORD
Technical Assistant, Sulphite Mill, Spruce Falls Power and Paper Co., Ltd.

This paper describes the problems associated with slime formation and the method of slime control being used at the sulphite mill of the Spruce Falls Power and Paper Co., Ltd., Kapuskasing, Ontario.

Slime presents a problem to the sulphite mill because of its tendency to clog lines and screens, thus reducing screening capacity, and also because of the off-grade pulp which results when slime fragments break away and become mixed with the stock.

Previous to the chemical treatment of stock lines with calcium hypochlorite solution, the screen room stock system was cleaned mechanically by scraping and sluicing. This method was expensive and inefficient as compared with the present method. It could only be done on week-end shutdowns without incurring a loss in production and a considerable amount of off-grade pulp was produced for several shifts after the start-up because of loosened slime fragments.

The use of calcium hypochlorite solution makes it possible to treat the system during the week without loss of production and results in much better slime control. As a result only a very small amount of off-grade pulp is produced on the start-up shift and the efficiency of the screens has been increased. The chemical treatment of slime has also made it unnecessary to bring in large maintenance and clean-up crews for weekend clean-up.

Behaviour of Paper Under Stress and Strain

BORJE STEENBERG
Swedish Forest Products Research Laboratory

By means of a series of new recording instruments the stress-strain behavior of paper has been studied under widely different conditions. The rate of strain has been varied by a factor of more than 10°. In the most rapid experiments the paper breaks within a milli-second. The slowest experiment requires several days. The behavior of paper in rapid and slow straining processes is different and so are the changes brought about in the material by the straining processes. This is shown for example by comparison of stress-strain curves for paper strained twice, first slowly and then rapidly and vice versa. The ultimate tensile strength increases very markedly in the rapid experiments but the relative increase is also a function of the fibre composition of the paper. Extensibility is not very much affected by the rate of straining. From the stress-strain curves several properties of the paper may be evaluated, e.g. the initial and ultimate modulus of elasticity and thixotropic changes brought about by repeated cycles of straining. The plastic properties of the material is given by tracing apparent viscosity curves. The practical value of such information for judging the properties of, for instance flongs, is discussed. Special attention is given to stress-relaxation of paper under constant deformation. This property may be very different for different papers. Some papers strained rapidly (0.001 sec.) will, while held under constant strain, relax extremely slowly and never completely. Others strained to the same extent, will dissipate the energy completely in as short a time as 0.01 sec.

In this connection experiments have been conducted in order to study how draws in the paper machine affects this and other paper properties as well as the influence of relative humidity. The importance of the capability of paper to dissipate energy without undue stresses being built up and the relation between

W. K. VOSS
Ontario Paper Co.
Chairman
Sulphite Manufacture Group

E. L. NEAL
Anglo-Canadian Pulp & Paper Mills
Chairman
Process Instrumentation Group

L. CORCORAN
Anglo-Canadian Pulp and Paper Mills
Chairman
Newsprint Group

this property and the case of tearing is discussed and held important especially for newsprint and bag paper. When a paper bag drops to the floor the kinetic energy is partly transformed into heat by friction between the particles filling the bag, and partly taken up by the paper. In the latter case some energy is dissipated as heat by irreversible stretch and some is stored as potential energy. Further studies on the energy distribution for different cases are required.

In the course of the lecture some theoretical implications will be discussed as well as the need for further research.

The Chemistry of the Hemi-Celluloses

LOUIS ELSBERG WISE
Research Associate, The Institute of Paper Chemistry, Appleton, Wis.

Although some chemists have tried to prove otherwise, it is pretty generally agreed that wood is physically, chemically and morphologically heterogeneous.

Wood contains two physically and chemically distinct groups of components. One of these is extraneous to the cell wall and the other group comprises the cell wall. The first group contains most of the extractives which give the various species of wood their characteristic colors, odors tastes, toxicity, degree of resistance to insect and fungus attacks and often affect the suitability for use as pulpwood.

The cell walls contain the cellulose, hemi-celluloses, lignin and small amounts of pectic materials and inorganic salts. The cellulose and hemi-celluloses together are called holo-cellulose. Thus we can say that wood is substantially composed of holo-cellulose and lignin, the remaining components, including the extractives, pectic materials and inorganic salts, being present only in very small quantities.

DR. W. GALLAY
E. B. Eddy Co.
Chairman
Wood Chemistry Group

A survey of the work of various investigators who have attempted to isolate the various constituents of the hemi-celluloses, gives an indication of the large number of carbohydrate compounds present in that material. Most of the available evidence on molecular sizes indicates that the degrees of polymerization of the hemi-celluloses range from 60 to 160 with the majority near the upper limit.

We can now readily prepare large samples of holo-cellulose by the U. S. Forest Products method or by Wise, Murphy and D'Addieco's modification of Jayme's sodium chlorite procedure without substantial loss of carbohydrates. Inasmuch as reproducible and nearly quantitive fractions of the hemi-celluloses can be isolated (under nitrogen) from holo-cellulose, future studies should give us a somewhat clearer overall picture. The advantage of starting with holo-cellulose, rather than with wood, a pulp, or an extractive-free plant tissue, has been pointed out by a number of investigators. These suggestions have been implemented by the work of Mitchell and Ritter and more recently by the quantitative studies of Thomas and of Wise and Ratliff. Anderson in his latter work also prefers to use chlorite holo-cellulose as a mother substance in the preparation of his hemi-cellulose fractions. The spade work has been done. It is now possible to obtain quite rapidly and almost quantitatively hemi-cellulose fractions that are lignin-free. These fractions are reproducible. Hence, somewhat deeper insight into the architecture of the hemi-celluloses should be effected.

Literature

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Schutte & Koerting Co., Adv. Dept., 12th and Thompson streets, Philadelphia 22, Pa. Bulletin 4-E, "SK Steam Jet Exhausters and Compressors." Tables, charts and drawings are used extensively to show the construction and operation of the exhausters, also sizes, dimensions and capacities. Colored diagrams graphically illustrate typical illustrations.

Schutte & Koerting Co., Adv. Dept., 12th and Thompson streets, Philadelphia 22, Pa. Bulletin 4-AB, "Steam Jet Blowers and Blast Nozzles." Gives complete data on dimensions, connection sizes, capacities and costs through tables, charts and drawings. Colored diagrams are used to illustrate typical applications of various types.

Synvar Corp., Wilmington 99, Del. Booklet, "Synvar Resins for Rubber Compounds, Cements and Latices." Supplementary sheets to "Green Booklet" of industrial resins. Provides general information on rubber compounding resins and instructions for their use.

Stauffer Chemical Co., 420 Lexington avenue, New York 17, N. Y. Catalog, "Stauffer Chemicals." A ready reference book on the manufacturer's products. Provides formula, properties, grades, typical analysis, principal uses, packing, shipping regulations and specific gravity tables for each, together with miscellaneous charts and tables of interest to chemical consuming industries.

Taylor Instrument Companies, Rochester 1, N. Y. Bulletin, 98170. Revised edition of "Taylor Guide to Correct Instrument Selection." Covers field of application of each type of instrument, its principles of operation and range limits. Bulletin is prefaced by basic types of instruments. Succeeding pages are divided according to the variables to be measured or controlled. Special function instruments are treated separately. Diaphragm valves, lever motors and valve positioning units also are included in the same section. Other pages give descriptions of mercury-in-glass thermometers for use on industrial apparatus and intermittent testing; etched-stem thermometers and hydrometers for laboratories and general industrial use; also information or Coordinated Control Systems.

Timber Engineering Co., Washington 6, D. C. Bulletin, "Research Facilities for the Lumber and Wood Using Industries." Describes briefly the company's research functions and facilities in the fields of wood product development, engineering and wood chemistry.

Union Bag & Paper Corp., 52 Broadway, New York 4, N. Y. (Dept. H., Chemical Sales Div.) Booklet, "Facts and Formulas in Coatings." New information on the application of refined tall oil in coatings. Study made for Union Bag by Battelle Memorial Institute, Columbus, Ohio, using "Unitol," the company's refined tall oil. Describes the processes which enter into the manufacture of Unitol and the general purposes for which it may be effectively used in coating industry.

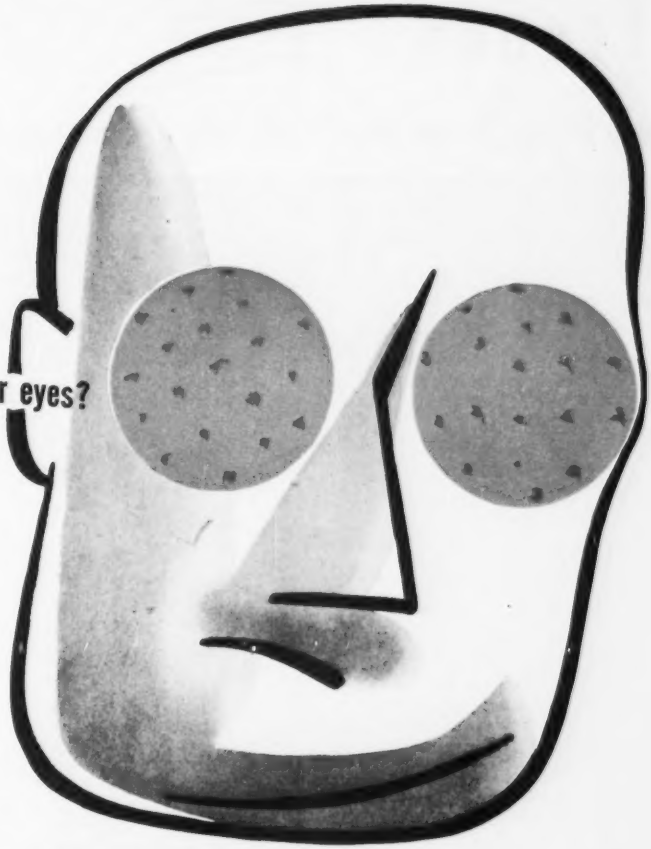
U. S. Radium Corp., 535 Pearl street, New York 7, N. Y. Bulletin, "Industrial Applications of the Ionotron Static Eliminator." Illustrates the applications in textile mills, also in printing, packaging, sheeting, bag making, folding and coating fields. Following a discussion of static electricity, the bulletin describes in text and diagrams unit construction and operating principles.

Wheelco Instruments Co. (Adv. Dept.), 847 W. Harrison street, Chicago 7, Ill. Manual, "Bulletin T/C 7, Thermocouple Manual." Provides information on selection of proper thermocouples and protecting tubes, methods of checking thermocouples and pyrometers, and installation data. Also describes and lists current prices on accessories.

RUST'S LATEST PAPER INDUSTRY PROJECTS

Functional type 325-ton-per-day Kraft board mill plant building designed and completed in 1948 by Rust Engineering Co., Pittsburgh, for the Container Corp. of America at Fernandina, Fla. . . . Portion to left of water tank is for paper roll storage. Long section is paper machine room. Tall portion at extreme right of picture contains diffuser and stock preparation facilities. The one-story buildings at center right house locker room and personnel facilities (Note: The five vision panels set in the walls of the paper machine room. Their purpose is not to admit light but to help employe morale by giving men a "change of focus"). . . Rust engineers were engaged during 1948 in nearly every industrial field, including design and construction of 54 reinforced concrete and radial brick chimneys, ranging up to 525 ft. in height and erection of more than 60 boiler settings, as well as other specialty work. . . For Bird & Son, Inc., producer of asphalt roofings, sidings, floor coverings and paper products, Rust designed and began installation of a new high voltage electric generating and distribution system at its East Walpole, Mass., plant. . . .Expansion work on paper making facilities at Crossett, Ark., was begun for Crossett Paper Mills as the inception of its three-year building program to nearly double production. An extension to the digester building and a new personnel building, providing modern facilities for 900 men, were completed.. . . . Also completed during the past year was a major modernization for the Brown Co. at Berlin, N. H., which included the design and construction of a 200 ton-per-day sulphate pulp plant. . . Rust engineers also completed an $8 million expansion project for the Celotex Corp. board mill at Marrero, La. . . . As consultants to the government of New Zealand, Rust experts were retained to survey and report on all phases of manufacture and mill operations in the production of newsprint and bleached sulphate pulp products from the Dominion's timber resources.

ever have spots before your eyes?



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Trends

Office of the PAPER TRADE JOURNAL,
Wednesday, February 9, 1949.

There is a feeling about this February market akin to that of last August. The prevalent lull in demand is general, the acceptance of the situation patient and optimistic. But there the resemblance ends. In August, the industry looked to a post-Labor Day business pickup, insignificant as it turned out to be. Today, while there is expectancy that the present lag can't be of long duration, there is no hope that a change will come immediately.

Whether the general business lag is a deflationary trend, consumer resistance to prices, or reduced purchasing power; there are supporters in each field. London analysts see incipient weakness in our business activity with no serious implications, provided the change in general pattern of prices works out reductions in the burden of food costs, thus releasing additional purchasing power for durables and nondurables. Savings bankers analyze the trend as a bent to thrift, with continued consumer resistance to price, and suspended buying while they wait for more reductions to follow those which have started falling. Others see a trend to savings because of the dollar's diminished purchasing power.

A nation-wide survey conducted personally by one New York economist indicated to him that the trend is national—prices must decline. This same writer believes the February-March period will have an important bearing on the price trend for most of this year, with the Administration's price supports keeping prices from too serious declines and the new stockpiling program bolstering the price structure.

Weather conditions are said to account for much of the 7 percent drop in department store business during the week ended January, Dun & Bradstreet reports. Drops of 8 percent were noted in New York and Philadelphia where no heavy weather was experienced, however. Apparel store sales during the same period were 15 percent behind a year ago in New York City, it is reported. And while retailers are not becoming alarmed about the drop in sales volume, they are smelling out the right answer: What do we do to stimulate consumer buying? After the New Look, what? If this be normalizing, leveling, adjusting, how do we help ourselves off the plateau?

Some there are who believe resistance to prices in the paper industry will begin with the anticipated drop in Scandinavian wood pulp prices to competitive U.S. levels, come "open water." Others feel it is highly doubtful that any noticeable pickup can come in wood pulp consumption until business itself feels a new surge of consumer demand. As the AP&PA pointed out in its December 1948 report: "The prospects for the paper industry depend upon the prospects for general business. Since it is a service industry, when general business is prosperous, the paper industry also is prosperous."

Wood Pulp

Adjustment of groundwood prices to $80 with full freight allowance amounts to price reduction of $5 to $9 a ton, and is reported to result from price resistance and lessened demand. Prices are firm at the new levels, and renewed buying is hoped for.

Since early in January, there has been speculation in the New York area as to whether the Canadians would be able to hold their prices on bleached and unbleached sulphite at $135 and $125 respectively against U.S. prices of $126 and $118. Likewise considerable concern is reported from Canadian producers that U.S. buying resistance would force them to lower their prices to meet U.S. levels. Our information is that they not only are holding their prices firm but will continue at these levels during the year's second quarter. (Any deviation from this is said to be locally where transportation charges are not a factor.)

Announcements have been made of the intention of Canadian producers to maintain their prices at first quarter levels to July 1, 1949. Timed to the moment when Scandinavian producers are thrashing out price and kronor problems, the statement is seen as a restraining move against further price drops. (In view of high woods costs, the Canadians hold that this is imperative.)

No Kroner Devaluation

From statements appearing in Swedish journals, it can be concluded that their pulp producers feel the natural solution to their price problem would be devaluation of the kronor. Says a recent article, "It has been pointed out that much of the difficulties of the Swedish manufacturers in competing in the American market is due to the unfortunate decision of July, 1946, to raise the value of the Swedish krona by 16 percent. Swedish trade and industry are fairly generally of the opinion that the oft repeated argument that a return of the Swedish krona to its value before July, 1946, would mean a great loss of prestige is considerably exaggerated."

Direct information provided the *Paper Trade Journal* by Mr. B. Fernlund, visiting Swedish editor at the American-Swedish News Exchange, Inc., is that the Swedish government has decided there will be no change in the value of the Swedish kronor.

Inasmuch as little wood pulp is being shipped, it is not expected that announcement of new prices will come before open water, however much the U.S. consumers are interested.

Against the present conditions of the paper and board markets, it is considered hard to estimate the size of the 1949 market for Scandinavian pulp. Depending on the price, it may range from 340,000 tons upwards. Judging from another article in the same Swedish journal, the Swedes alone may have that much to market in the U.S. "In view of the changed situation on the export market," says the writer, "the pulp industry has declined to renew the agreement in respect of deliveries of pulp to the paper industry at reduced prices, as the export sales do not reasonably compensate for the losses on the home market. . . . It seems likely that the sales of pulp and paper will to a greater extent be directed towards exports, and that shipments to the home market will be cut down."

Writing Papers

First notice of price reduction, amounting to about 4 percent, has come in the rag-content field. Cuts range from 1½ cents a pound on 100 percent rag to ½ cent on 25 percent.

Kraft

Supply of kraft wrapping is reportedly gaining on demand. Although shelf stocks of all weights are nonexistent, the condition has materially improved to a point where kraft wrapping can be had at current market prices, or close to it. Should the present level of business continue, it is highly probable that increasing capacity will bring this touchy spot of U.S. business needs into balance with demand, even produce a buyers' market.

Cut of a half cent a pound in Northern multiwall bag stock price is reported as made possible by more efficient operation at one mill.

Indexes

Index of general business activity for the week ended January fell to 152.0 from 154.7 in the preceding week, compared with 151.3 for the corresponding week of 1948. Index of paperboard production dipped to 183.9 from 193.7 in the preceding week, compared with 183.2 in the corresponding week of 1948.

Comparative ratios of U.S. paper and paperboard production to mill capacity, as reported by AP&PA are:

	Jan. 29 1949	Jan. 22 1949	Jan. 31 1948	Feb. 1 1947	Feb. 2 1946
Paper**	95.3	105.3	103.6	104.0	101.5
Paperboard	88.0	92.0	103.0	102.0	95.0

** Capacity in tons, 178,114; 1948, 172,008.

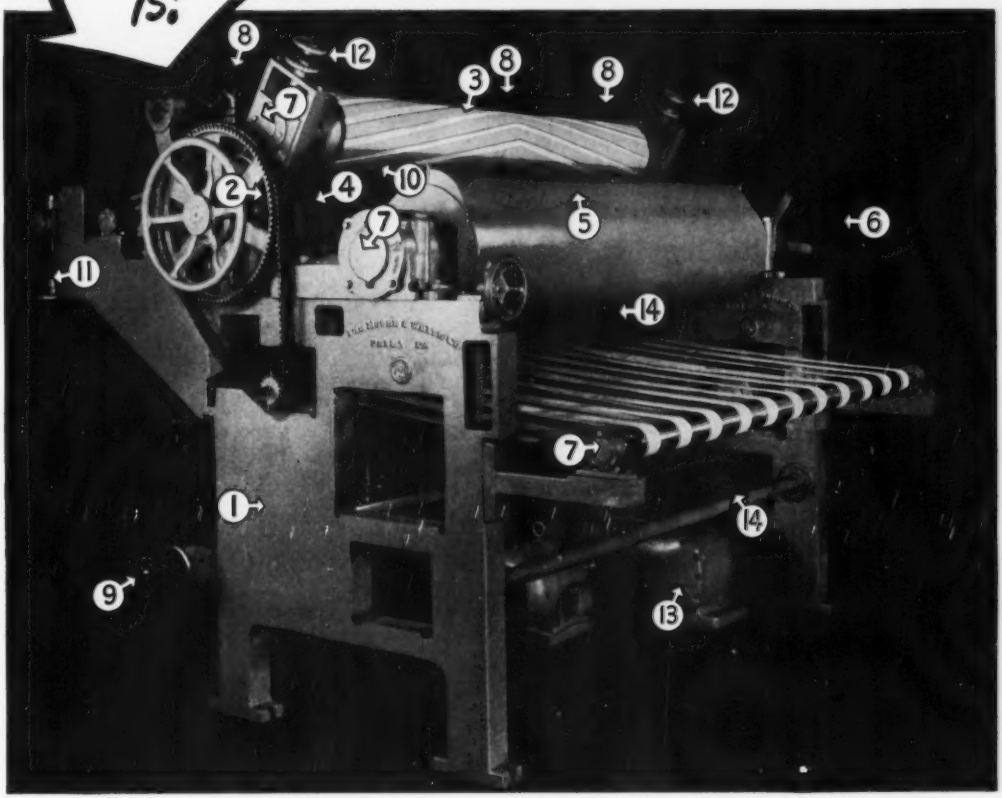
Paperboard Production (Tons)

	Jan. 29 1949	Jan. 22 1949	Jan. 31 1948	Month of Jan.
Production	181,483	191,306	185,944	725,661
New Orders	167,930	182,892	196,886	727,452
Unfilled Orders	304,146	327,700	432,911	304,146

Percent of Activity, Current: 88%; Year, 88%.

Here it is!

NEW Moore & White Cutter



Adaptable to duplex or triplex installations

Carefully check these features—

1. Interchangeable box-section frames.

2. Heavy-duty centrifugal-cast drum, heads pressed in, outside diameter of drum 15", balanced for high-speed operation.

3. Squeeze-roll made of heavy-duty pipe 9" diameter, rubber-covered, pressed-in heads.

4. Bed for stationary knife, extra heavy casting. Bed-knife adjustable.

5. Revolving knife is held solidly to balanced cylindrical casting.

6. All drive gears are cast iron. All teeth cut for close running tolerances to eliminate backlash.

7. All moving parts encased in antifriction bearings. All bearings easily reached for lubricating purposes. Because of this feature, the horsepower required for this type sheet-cutter is considerably less than required by former cutters.

8. Roller bearing top-slitters, double edge bottom-slitters. Slitters are driven 20 percent faster than the sheet travels to insure clean-cut edges.

9. Standard sheet lengths 18" x 72". The sheet lengths are adjustable from minimum to maximum, through adjustment of one hand-wheel. No gears or step-pulleys to change or adjust. Once the sheet length is set, it remains constant. Sheet lengths over 72" obtainable, if desired.

10. Doctor-board is adjustable and cannot sag, due to heavy backing plate.

11. Lead-in paper-roll adjustable up or down 6", allowing a wide range of adjustments to meet condition of rolls being sheeted.

12. Squeeze-roll brackets adjustable.

13. P.I.V. gear drives rotary knife. May be installed inside or outside of frame.

14. All prime-mover gears are silent-chain-type, fully enclosed with chain-tighteners.

These cutters will cut with a high degree of accuracy on both widths and lengths.

They are built to standard widths of 50, 62, 72, 84, 96, 110 and 124 inches. Additional widths are available in special heavy-duty types. Write today for complete information.

The MOORE & WHITE Company

15TH STREET AND LEHIGH AVENUE • PHILADELPHIA 32, PA.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

Imports

Week Ending Feb. 5

NEW YORK

Newsprint

Madden Reeve Angel & Co., Inc., Tidaholm, Helsinki, 1422 rolls.

Gilman Paper Co., Stockholm, Gothenburg, 352 rolls.

Pagel Horton & Co., Inc., Ranenfjord, Brevik, 1078 rolls.

Cigarette Paper

Freedman Slater & Co., American Leader, Havre, 213 cs.

Writing Paper

Gimbel Bros., American Leader, Havre, 2 cs.

Gimbel Bros., America, Havre, 1 cs.

Wallpaper

Hudson Shipping Co., American Leader, Havre, 1 cs.

Eskil Halle, Mormacsaga, Oslo, 10 bls.

Photo Paper

J. J. Gavin Co., Queen Mary, Southampton, 4 cs. (unsensitized).

Surface Coated Paper

Gevaert Co. of America, Aalslyk, Antwerp, 24 cs.

Serviettes

Brundage Merchandise Co., Robert Maersk, Rotterdam, 120 bls.

Napkins

B. H. Heede, Mormacsaga, Oslo, 212 cs.

Wallboard

Pulp Sales Corp., Tidaholm, Helsinki, 1 cs.

Miscellaneous Paper

J. E. Bernard & Co., Noordam, Rotterdam, 1 cs.

Rags, Baggings, Etc.

Irving Trust Co., Mathilda Thorden, Gothenburg, 61 bls. rags.

Connecticut Burlap & Waste Co., Magdapur, Calcutta, 80 bls. jute rags.

Midwest Waste Material Co., Robert Maersk, Antwerp, 89 bls. scrap bagging, 71 bls. thread waste, 40 bls. jute bagging.

Ledeboer & Co., Robert Maersk, Antwerp, 344 bls. cotton waste.

Royal Manufacturing Co., Robert Maersk, Rouen, 62 bls. cotton waste.

Manufacturers Trust Co., Wells City, Avonmouth, 27 bls. rags.

Riverside Mills, Mormacdove, Cabedello, 635 bls. cotton waste pickers.

Buffalo Batt & Felt Corp., Exchange, Bombay, 165 bls. picker waste.

Chemical Bank Trust Co., Exchange, Madras, 65 bls. old jute rags.

Tradesmans National Bank, Exchange, Madras, 100 bls. old jute rags.

Castle & Overton, Inc., Exchange, Madras, 200 bls. old jute rags.

Buffalo Batt & Felt Corp., Exchange, Madras, 100 bls. old jute rags.

(———), Vulcania, Genoa, 178 bls. cotton linters.

Old Rope Cuttings

P. J. Schweitzer, Exchange, Calcutta, 306 bls. old hemp rope cuttings.

Smith & Bird, Exchange, Calcutta, 185 bls. old hemp rope cuttings.

China Clay

English China Clay Sales Corp., Wells City, Avonmouth, 448 bags.

Hidecuttings

John Gorvers, Santa Monica, Barranquilla, 142 bags.

Woodpulp

Perkins Goodwin & Co., Stockholm, Gothenburg, 1 pcl. (samples).

Pagel Horton & Co., Inc., Stockholm, Gothenburg, 1 pcl. (samples).

Pulp Sales Corp., Tidaholm, Helsinki, 1 cs. cellulose.

Woodpulp Boards

Jay Madden Corp., Tidaholm, Helsinki, 582 bls. 281 rolls (solid white).

BOSTON

Hercules Powder Co., Mormacteal, Buenos Aires, 500 bags casein.

International Purchasing Co., Excalibur, Genoa, 70 bls. old rope.

PHILADELPHIA

Chemical Bank Trust Co., Mathilda Thorden, Stockholm, 7 bls. new jute bagging, 86 bls. old bagging.

Elof Hansson, Inc., Tidaholm, Halmstad, 1250 bls. dry chemical pulp.

Maaden Reeve Angel & Co., Inc., Tidaholm, Kotka, 749 rolls newsprint.

Jay Madden Corp., Tidaholm, Rauma, 400 rolls wrapping paper.

(———), Tidaholm, Rauma, 4708 bls. prime bleached sulphite pulp, 7500 bls. prime strong bleached sulphite pulp, 407 bls. prime unbleached sulphate pulp, 760 bls. prime strong sulphite pulp, 385 bls. greaseproof sulphite pulp.

BALTIMORE

Pulp Sales Corp., Tidaholm, Rauma, 1040 bls. prime unbleached strong sulphite pulp.

Australian Forest Output

OTTAWA—Production of forestry industry in Australia represented 14,400,585 or 1.9 percent of total production, states a report of the Foreign Trade Service, Department of Trade and Commerce, Canadian Government.

Canada Supplies U. K.

OTTAWA—Canada supplied 45 percent of the total 1948 imports of newsprint into the United Kingdom, A. E. Bryan, commercial counsellor for Canada in London, Eng., reports.

INSTITUTE HEAD

J. H. W. Conklin, sales manager, Industrial Truck Division Clark Equipment Co., Battle Creek, Mich., elected president, Materials Handling Institute, succeeding S. W. Gibb sales manager Yale & Towne Mfg. Co.

Naval Stores Exports

WASHINGTON — Exports of naval stores from the United States for the first 10 months of 1948, according to the Bureau of Census, totaled as follows:

Gum rosin, 80,529,984 pounds, valued at $6,616,662; wood rosin, 103,214,480 pounds $7,632,919; spirits of turpentine (gum) 2,293,827 gallons, $1,468,277; wood turpentine, 1,747,763 gallons, $917,856.

Vt., for St. Lawrence Plan

MONTPELIER, Vt. — Vermont is preparing to take advantage of the harnessing of the St. Lawrence River, if that measure passes in Congress, paper manufacturers were told on February 4 when a bill calling for the creation of a Vermont Power Authority was introduced into the House of Representatives by State Representative Keith Wallace of Waterbury.

No Orders Issued

OTTAWA—Minister of National Revenue, Hon. J. J. McCann, stated in the Canadian Parliament here that, with reference to the export of pulpwood "no orders or regulations have been issued under the export of petroleum and pulpwood regulations established under Chapter 63 of the Revised Statutes of Canada, 1927, since the last return to Parliment."

Canada to Venezuela

CARACAS, Venezuela — Among imports from Canada to Venezuela in the first nine months of 1948, were included $346,000 of sulphite pulp and $369,000 of newsprint, J. A. Stiles, acting Canadian Government trade commissioner here, reports that Venezuela provides "the best opportunities for Canadian firms in the future" in paper and paper products.

Portuguese Import List

LISBON, Portugal—Portugal has prepared a list of importable products, indicating the classes and kinds of merchandise for which import licenses and dollar exchange will be granted or considered, with first and second priority lists for such imports being established, including newsprint in the first priority class.

Canada Paper Imports

OTTAWA—Canadian imports of paper dropped to $1,527,000 in November, 1948, compared with $2,099,000 in November, 1947, and declined to a total of $15,858,000 in the first eleven months of 1948 as against $21,610,000 in the corresponding period of the preceding year, the Canadian Government reports.

Frt. Forwarders Organize

OTTAWA — The Canadian International Freight Forwarders Ass'n., Inc., has been formed by Canadian freight forwarders to protect their interests and those of their clients by establishing uniform trade practices and regulations, and by eliminating trade abuses.

Holding steady....

The Bettmann Archive

It wasn't always easy to hold steady in the early days of photography—
or in the pioneering of any new industry.

Niagara Alkali Company, a pioneer in the field of electro-chemistry in America has always held steady in the development of high-quality products. And, through the years, Niagara has always kept its aims in proper focus and has always had the courage and willingness to try new methods and techniques in manufacture and servicing.

Count on Niagara for Caustic Soda, Caustic Potash, Carbonate of Potash, EBG Liquid Chlorine, Paradichlorobenzene and Niagathal (Tetrachloro Phthalic Anhydride).

NIAGARA ALKALI COMPANY

60 East 42nd Street, New York 17, N. Y.

LIQUID CHLORINE • CAUSTIC POTASH • CARBONATE OF POTASH • PARADICHLOROBENZENE • CAUSTIC SODA • NIAGATHAL (TETRACHLORO PHTHALIC ANHYDRIDE)

Prices

Quotations indicate trends in an open market. At the moment they can be of little more value. While some volume business still is done under contract at the figures shown, fluctuations are too varied and frequent to permit prices to be interpreted as representing a wholly stabilized market.

NEW YORK

Paper

Delivered New York

STANDARD NEWS, per ton—

Rolls, contract	$100.00/	—
Sheets	115.00/	—

F.o.b. mill, varying freight allowances, Zone 1.

KRAFT—per cwt., 40# base wgt.		
No. 1 Wrapping	7.75/	8.00
Standard Wrapping Rolls	7.00/	—
Standard Wrapping Sheets	7.50/	—
Standard Bag	6.50/	—
Multiwall Bag, 40# and heavier, 24x36 (500 sheets)		
Southern	7.50/	7.75
Northern	8.85/	10.15

TISSUES—Per Ream 24x36 (480)	10/11 lbs.	
Wh. No. 1 Frd.	$1.84/	$2.00
Wh. No. 1 M. G.	1.94/	2.00
Wh. No. 1½	1.65/	—
Wh. No. 2	1.45/	1.55
Kraft Anti-Tar	1.65/	—
Kraft Unbl	1.85/	—
Shred. Wh. No. 1 per lb.	.12½/	.18

TOILET—Per Case of 100 rolls—1 M Sheets.

Unbleached 4½x4½	$7.20/	—
Unbleached 4½x5	5.85/	—
Bleached 4½x4½	8.00/	—
Bleached 4½x5	8.45/	8.80
Per Case of 50 rolls—1500 sheets		
Unbleached 4½x4½	$5.70/	—
Per Case of 50 rolls—2000 sheets		
Unbleached 4½x4½	$6.95/	—
Bleached 4½x4½	7.70/	—

PAPER TOWELS—Per Case of 3750—Zone 1.

Wh. Jr. M'tif'd 9¼x9½	$3.45	
Br. Sr. M'tif'd 10x12	3.80	
Br. Jr. M'tif'd 9½x9¼	3.30	
Br. Jr. Sgl. fold 10x10¾	3.35	

MANILA, per cwt.

No. 1 Jute Tag, sheets*	$15.05/	—
Reg. Jute M.F. Manila, sheets*	13.50/	15.50
No. 1 Manila Wrapping	8.75/	10.50
Printing Manila	10.00/	11.00
* Less usual allowance for rolls.		

BOARDS, per ton—

Filled News	$80.00/	$82.50
Plain Chip	80.00/	—
Bldd. Mla. Ld. Chip	102.50/	05.00
White Pat. coated*	120.00/	
Kraft Liners 42 lb.	105.00/	
Kraft Corr. .009	110.00/	
Binders Boards	120.00/	126.00

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

RAG CONTENT BONDS AND LEDGERS—

White, 16 lb.

BONDS, per cwt.

	Carton 4 C'n'rs	Ton
100% Rag Ext. No. 1	$59.00	$54.55 $52.30
100% Rag	52.25	48.30 46.30
75% Rag	41.50	38.30 36.70
50% Rag	33.75	30.70 29.50
25% Rag	30.25	27.45 26.35

LEDGERS, per cwt.

100% Rag Ext. No. 1	$57.00	$52.65 $50.50
100% Rag	50.25	46.40 44.50
75% Rag	41.50	38.30 36.70
50% Rag	33.75	30.70 29.50
25% Rag	30.25	27.45 26.35

SULPHITE BONDS AND LEDGERS—

White, 16 lbs.

BONDS, per cwt.

No. 1	$21.25	$19.25	$18.50
No. 2	20.25	18.30	17.55
No. 4	19.25	17.55	16.85

LEDGERS, per cwt.—

No. 1	$21.75	$19.65	$18.85
No. 2	20.75	18.75	18.05
No. 4	20.00	18.10	17.35

WHITE BOOK, per cwt.—

Coated	Case	Ton
No. 1 Glossy	$20.90	$20.15
No. 2 Glossy	19.65	18.90
No. 3 Glossy	18.90	18.25
Machine Coated	16.65 to 17.15	16.05 to 16.35
Uncoated		
No. 1 Antique (Watermarked)	16.40	15.80
Offset	15.15 to 17.15	14.60 to 16.40
A Grade E. F.	15.40	14.85
A Grade S. C.	15.90	15.35
B Grade E. F.	15.15	14.55
B Grade S. C.	15.65	14.95

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)		
Coarse Polished—India	.35½/	.36½
Fine Polished India	.41½/	.45
Unpolished—Paper Makers	.32¾/	.34½
Tube Rope	.33¾/	.35½
Wrapping	.36 /	.38¾
Cotton	.58 /	.60
Polished Cotton	.55 /	—
(Hard Fiber)		
Mex. Sisal	.21 /	.27
Manila (Reprocessed)	.31 /	.35
(American Hemp)		
Polished Hemp	.46½/	.48
Unpolished	.35 /	.37½

World Wood Pulp Markets at a Glance

First Quarter Contract Prices, Per Short Air-Dry Ton

	Delivered, with varying freight allowances		On dock Atlantic Ports		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$80.00/ —	$80.00/ —			
Sideruns Pulping News		80.00/ 90.00			
Soda, Bleached	130.00/135.00	130.00/ —			
Sulphate, Bleached	136.00/145.00	147.50/150.00	$150.00/ —		
Sulphate, Unbl'd North'n	115.00/125.00	115.00/125.00	127.50/ —	127.50/ —	
Sulphate, Unbl'd South'n	105.00/115.00				
Sulphite, Blchd. (S'ftw'd)	126.00/135.00	135.00/ —	140.00/165.00	165.00/ —	140.00/165.00
Sulphite, Blchd. (H'dw'd)	125.00/145.00				
Sulphite, Unbleached	118.00/ —	125.00/ —	135.00/140.00	140.00/143.00	
Sulphite, Unbl'd (Glessine) (Varying frt. allowances)	120.00/ —	130.00/ —			
Sulphite, Unbl'd (Glassine) (No freight allowed)		118.00/ —			

Waste Paper Market

Base Prices to Mills for Average Packings

F.O.B. Shipping Point (Per Ton)

	New York Feb. 1	Philadelphia Jan. 31	Boston Jan. 29	Chicago Feb. 1
No. 1 Hd. Wht. Env. Cuts	$95.00/100.00	$90.00/ 95.00	$90.00/105.00	$90.00/100.00
No. 1 Hd. Wht. Shvs., unr'l'd	80.00/ 85.00	65.00/ 70.00	80.00/——	80.00/——
Super Soft Whit. Shvs.	80.00/ 85.00	70.00/ 75.00	80.00/110.00	75.00/——
No. 1 Soft Wht. Shvs.	60.00/ 65.00	50.00/ 55.00	70.00/ 80.00	55.00/——
No. 1 Fly Leaf Shvs.	40.00/——	20.00/ 25.00	35.00/ 40.00	35.00/——
No. 1 Gdwd. Fly Leaf Shvs.	20.00/ 30.00	15.00/ 20.00	25.00/——	45.00/——
No. 1 Heavy Books & Mag.	17.00/ 19.00	17.00/ 20.00	22.00/ 23.00	23.50/——
Mixed Books	9.00/ 11.00	9.00/ 10.00	12.00/——	9.00/——
No. 1 Wht. Ledger	32.50/ 35.00	35.00/ 40.00	45.00/ 50.00	
Colored Ledger	35.00/ 40.00	25.00/ 30.00	37.50/——	30.00/ 35.00
Manila Tab. Cards	50.00/ 55.00	50.00/ 55.00	65.00/ 75.00	65.00/——
New Manila Env. Cuts	65.00/ 75.00	60.00/ 65.00	60.00/ 70.00	70.00/——
Extra Manilas	20.00/ 25.00	20.00/ 25.00	30.00/ 35.00	30.00/ 35.00
Mxd. Kraft, Bag Cuts	45.00/ 55.00	45.00/ 50.00	70.00/——	60.00/——
Kraft Envelope Cuts	65.00/ 70.00	75.00/ 80.00	70.00/ 75.00	65.00/——
Trpl. Std. No. 1 Brn. Sft. Kraft	35.00/ 40.00	30.00/ 35.00	40.00/ 45.00	40.00/——
New Kraft Corr. Cuts	30.00/ 35.00	25.00/ 30.00	45.00/——	55.00/——
No. 1 Asstd. Old Kraft	30.00/ 35.00	25.00/ 30.00	25.00/——	20.00/——
Used Kraft Bags	30.00/ 35.00	15.00/ 18.00	30.00/——	35.00/——
New Jute Corr. Cuts	18.00/——	20.00/——	16.00/——	17.00/ 18.00
Old Corrugated	14.00/ 15.00	13.00/ 15.00	13.00/ 14.00	14.00/——
No. 1 News	12.00/ 14.00	8.00/ 10.00	11.00/ 12.00	—— / 15.00
No. 1 Mixed Paper	4.00/ 5.00	4.00/ 6.00	—— / 7.00	7.00/——
Box Board Cuts	6.00/ 7.00	4.00/ 5.00	10.00/——	10.00/——
White Blank News	60.00/ 65.00	55.00/ 60.00	—— / 60.00	45.00/——
Overissue News	17.00/ 18.00	12.00/ 14.00	11.00/ 12.00	18.00/——
Sulphite Mill Wrappers	12.00/ 14.00	6.00/ 8.00	15.00/——	12.00/——

Rag Market

New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. Ship. Pt.)

White Shirt	$10.00/	$10.50
Unbleached Muslin	10.00/	10.50
Light Silesias	7.00/	7.50
White Back Blue Overalls	5.50/	6.00
Blue Overalls	5.00/	5.50
Fancy Shirt	4.50/	5.00
Percales	5.50/	6.00
Light Prints	5.50/	6.00
No. 1 Washables	2.75/	3.00
Bleachable Khaki	5.00/	5.50
Unbleachable Khaki	4.50/	5.00
Cottonades	4.25/	4.75
Lt. Flannelettes	7.00/	7.50
Men's Corduroy	3.50/	4.00
Women's Corduroy	3.00/	3.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	$4.50/	$5.00
No. 1 Whites, Miscellaneous	3.50/	4.00
No. 2 Whites, Repacked	2.75/	3.00

(Continued on page 34)

WELCOME T.A.P.P.I. AND A.P.P.A. MEMBERS

Drop in with your problem anytime during the convention!

National Headquarters • Hotel Commodore New York City

SALES STAFF

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TECHNICAL STAFF

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National
STARCH PRODUCTS

270 MADISON AVENUE, NEW YORK 16, N. Y.

STARCHES—AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

Prices

CONTINUED FROM PAGE 32

No. 2 Whites, Miscellaneous	2.00/	2.25
Blue Overalls	3.00/	3.25
Thirds and Blues, Repacked	2.00/	2.25
No. 1 Roofing Rags	1.40/	1.50
No. 2 Roofing Rags	1.25/	1.35
No. 3 Jute Bagging	1.15/	1.25
No. 4 Brussels & hrd. Bck'd crpts.	1.25/	1.35
No. 5A Roofing Rags	1.25/	1.35

New Foreign Cotton Cuttings

(Prices to Dealer, F.o.b. Dock, N. Y.)

Per 100 lbs.

New Dark Cuttings
New Mixed Cuttings
Light Silesias
Light Flannelettes
New White Cuttings
New Unbleached Cuttings
Fancy Shirt Cuttings
Light Prints
Bleachable Khaki, No. 1
Unbl. Khaki, No. 1

prices are nominal

Old Foreign Rags

(Prices to Dealer, F.o.b. Dock, N. Y.)

Per 100 lbs.

No. 1 White Cottons
No. 2 White Cottons
No. 3 White Cottons
No. 4 White Cottons
Extra Light Prints
Old Light Prints
Med. Light Prints
Dutch Blue Cottons
Checks and Blues
Linsey Garments
Dark Cottons, European
Dark Cottons, Egyptian
Old Shopperies
New Shopperies

prices are nominal

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny, No. 1	$8.00/	$8.50
Domestic Gunny, No. 1	7.50/	8.50
Heavy Wool Tares	7.00/	7.50
No. 1 Scrap Bagging	6.00/	6.25
Roofing Bagging	.80/	.95
Foreign Manila Rope	5.25/	5.50
Domestic Manila Rope	5.65/	5.75
Jute Strings	6.75/	7.00
No. 1 Sisal Strings	5.00/	5.25
Mixed Strings	1.30/	1.50

PHILADELPHIA

Domestic Rags (new)

(F.o.b. Eastern Shipping Point)

White Shirt	.10½/	.11
Light Silesias	.07½/	.08
Black Silesias, soft	.05½/	.06
Unbleached Muslin	.10½/	.11¼
Washable Prints	.06½/	.07
Washable No. 1	.05 /	.05½
Blue Overall	.07½/	.08
Washable Shredding	.02¾/	.03¼
Fancy Percales	.06¾/	.07¼
Unbleachable Khaki	.05½/	.06½
Bleachable Khaki	.06¼/	.06¾
Men's Corduroy	.05½/	.06
Ladies' Corduroy	.05 /	.05½
Cottonades	.05½/	.06

Domestic Rags (old)

(F.o.b. Eastern Shipping Point)

Mixed White	3.50	/ —
Thirds and Blues Repacked	2.00	/ —
No. 1 Roofing Stock	1.20	/ —
No. 2 Roofing Stock	1.10	/ —

Bagging

(F.o.b. Eastern Shipping Point)

Roofing Bagging	1.35	/ 1.40
Old Manila Rope	—	/ 5.50
Foreign Gunny No. 1	nominal	
Domestic Gunny No. 1	.07¼/	.07¾
Sisal Strings No. 1	.04½/	.05
Sisal Strings No. 2	.03½/	.04
Sisal Jute	.02¾/	.03
No. 1 Scrap	.06½/	.07
No. 2 Scrap	.03 /	.03½

BOSTON

Bagging

(F.o.b. Boston)

	(Per 100 lbs.)	
Foreign Gunny	8.50	/ 8.75
Domestic Gunny	8.50	/ 8.75
Domestic No. 1 Old Rope	6.00	/ 6.50
Foreign No. 1 Old Rope	5.75	/ 6.00
Mixed Strings	1.35	/ —
Transmission Rope—Domestic	3.00	/ 3.50
Jute Carpet Threads	—	/ 4.00
Bleachery Burlap	—	/ 9.00
Scrap Burlap—		
Foreign	6.75	/ 7.00
Domestic	8.25	/ 8.50
South America	8.25	/ 8.50
Austr. Wool Pouches	8.50	/ —
New Zealand Wool Pouches	8.00	/ —
New Burlap Cuttings	8.50	/ —
Heavy Baling Bagging	8.00	/ 8.50
Paper Mill Bagging	—	/ 7.25
No. 1 Roofing Bagging	—	/ 1.40

Domestic Rags (New)

(F.o.b. Boston)

	(Per 100 lbs.)	
New Light Prints	nominal	
Fancy Percales	—	/ 6.50
White No. 1 Shirt	10.00	/10.75
Light Flannelettes	7.00	/ 7.50
Canton Flannels, Bleached	9.00	/ 9.25
Underwear Cutters, Bleached	10.00	/10.25
Underwear Cutters, Unbleached	10.00	/10.25
Blue Overalls	—	/ 6.00
Soft Unbleached	10.00	/10.75
Blue Cheviots	7.00	/ 7.25
Fancy Shirt	5.00	/ 5.25
Washable	5.00	/ 5.25
Khaki Cuttings	5.00	/ 5.25
Men's Corduroy	4.50	/ —
Khaki Canvas	—	/ 5.50
B. V. D. Cuttings	10.00	/10.25

Domestic Rags (Old)

(F.o.b. Boston)

	Per 100 lbs.	
No. 1 Whites, Repacked	$4.50	/$5.00
No. 1 Whites, Miscellaneous	3.00	/ 3.75
Twos and Blues, Repacked	2.25	/ 2.50
Old Blue Overalls	3.00	/ 3.25
No. 1 Roofing Stock	—	/ 1.45
No. 2 Roofing Stock	—	/ 1.35
No. 3 Roofing Stock	—	/ .80
No. 4 Roofing Stock	—	/ .80
No. 5, Quality A	—	/ 1.20
Old Manila Rope	6.00	/ —

Markets

Blanc Fixe

Dry direct process supply good. Demand steady. Currently quoted at $85.00 in bags, car lots at works, 6 cents per pound, l.c.l., deld. By-product supply somewhat restricted. Quoted at $77.50 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Supply improves. Demand strong. Prices steady. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l., works.

Casein

Argentine price weakens further. Buyer interest sags. Domestic price also weakens 1 cent. Expect bigger U. S. supply and much lower prices in 1949. Current prices on processed acid precipitated casein at 28 to 32 cents per pound for domestic grades and 25 to 25½ cents for imported grades, f.o.b. shipping point.

Caustic Soda

Supplies available for prompt delivery. Flaked and solid much improved. Export trading easier. Prices steady. Solid caustic is reported at $3.10/$3.20 per cwt. flaked and ground is quoted at $3.50 per cwt., in 400 pound drums, $4 to $4.45 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.50 per cwt.; liquid 73 percent in tank cars at $2.60 per cwt., at works.

China Clay

Supply ample. Demand steady. Domestic filler quoted at $10 to $12.50 per ton, car lots, f.o.b. mines. Coating clay is $15 to $25. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine

Demand easier. Slight improvement in supply reported. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt. in multi-tank cars, f.o.b., works.

Rosin

Prices drop further; not yet stabilized. Trading dull as consumers proceed cautiously. Export sales good. Gum rosin in drums per 100 pounds net in car lots, f.o.b., Savannah; B, $6.65; G, H, I, K, $7.15; Wood rosin per 100 pounds net, car lots, f.o.b. Savannah; B, $5.00; FF, $6.50.

Rosin Size

Demand continues strong. Supply good. Price eases 15c. Seventy percent gum and pale wood grades, tank cars, $6.15 to $6.25, f.o.b. southern shipping point.

Salt Cake

Supply good. More efficient use has cut industry needs. Prices steady. Domestic salt cake quoted at $27.00, f.o.b. shipping point, freight allowed to destination.

Soda Ash

Supply condition favorable. Delivery good. Prices firm. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Sodium Bicarbonate

Production good. Demand eased by better supply of other alkalis. Reported as $1.95 per cwt. paper bags, carload lots.

Starch, Corn

Demand fair. Prices steady. Supply ample. Pearl grade quoted at $4.92 per 100 pounds; powdered starch at $5.03 per 100 pounds; car lots, f.o.b. Chicago.

Starch, Potato

Paper mill demand brisk. Supply ample. Idaho price stronger. Maine market steadies. No further weakening expected. High grade quoted at $4.50 cwt. f.o.b. Idaho; $4.75/$5.00 f.o.b. Maine; Pearl grade, $4.50/$4.75 cwt. f.o.b. Maine.

Sulphate of Alumina

Supply good. Price steady. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Export demand appreciably increased. Supply good. Annual contracts are quoted at $18 per long ton, f.o.b. mines; $19.50, f.o.b. vessels, Gulf ports. Export price f.o.b. Gulf ports is $22.00 per long ton.

Talc

Demand continues in excess of supply. Improvement due. Prices steady. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Tapioca Flour

Prices steady. Slight increase noted in demand. High grades in fair supply. Superior high range from $10.25/$11.50 cwt.; high grades $9.25 cwt., on dock Atlantic and Gulf ports; medium grades range from $6.00/$7.50 cwt. on dock, N. Y. Coarse pearl grades, $5.00/$5.50 cwt. on dock N. Y. Medium and low grades in adequate supply.

Titanium Dioxide

Prices advance 1½ cents, actual freight allowed. Supply of paper grades continues unequal to demand. Shipments on allocation. Improvement in supply delayed to 1951. Anastase 19½c pound carload lots, 20c l.c.l., rutile, 21½c pound carload lots, 22½c l.c.l.; 50-pound bags, f.o.b. plant, actual freight allowed.

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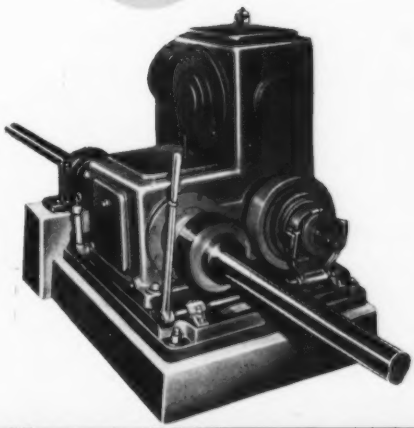
SYCO Drive Units provide the modern, mechanical variable speed drive for all sections of your paper machine—give speed control that turns out constant quality paper in *increased* production . . . require less labor, floor space, and power.

Better paper . . . more paper from present machine with precision-built SYCO Drives . . . rugged alloy shafts mounted in accurate anti-friction bearings . . . automatic full-flow lubrication . . . close alignment . . . these factors pay dividends in around-the-clock trouble-free operation.

For new machines, or machines now in service, SYCO Drives are available, easily installed, completely engineered to your exact requirements.



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Preferred and Common Stocks

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Financial Record

Preferred Stocks	Per Share Calendar Year 1947	Earnings 12 Mos. to Approx. 9/30/48	Indic. Annual Divid. Rate	Feb. 8 Approx. Market Price
Armstrong Cork Co. $3.75 Cum.	$38.64*	$43.53*j	$3.75	99¼
Armstrong Cork Co. $4.00 Cum. Conv.	38.64*	43.53*j	4.00	108⅞
Celotex Corp. 5% Cum.	24.25c	26.42k	1.00	17⅛
Champion Paper & Fibre $4.50 Cum.	65.90f	43.82j	4.50	96
Conftainer Corp. of Amer. 4% Cum.	102.74	98.49	4.00	96½
Crown Zellerbach $4.20 Cum.	56.40f	59.10k	4.20	96⅝
Crown Zellerbach $4.00 Cum. Conv. 2nd	211.39f	178.01k	4.00	97½
Dixie Cup Co. $2.50 Cum. Conv. Cla	9.16	9.61	2.50	49⅝
Flintkote Co. $4 Cum.	81.91	81.35m	4.00	99
Robert Gair Co., Inc. 6% Cum.	18.01	15.97	1.20	16⅜
International Paper Co. $4 Cum.	236.51	242.27	4.00	95¼
Johns-Manville $3.50 Cum.	128.81	175.15	3.50	109
Kimberly Clark Corp. 4½% Cum.	70.03	82.79	4.50	104⅛
Kimberly Clark Corp. 4% Cum. Conv. 2nd	95.88	114.55	4.00	96¾
MacAndrews & Forbes 6% Cum.	62.20	59.89	6.00	137½
Mead Corp. 4¼% Cum.	81.56	80.43	4.25	76½
Mead Corp. 4% Cum. Conv. 2nd	53.34	51.89	2.00	32
Paraffine Cos. Inc. 4% Cum. Conv.	152.76a	156.11m	4.00	103⅜
Rayonier Inc. $2 Cum.	13.58	16.09	2.00	33¼
St. Regis Paper Co. 4.40% 1st A	76.93	85.00	4.40	84⅞
Scott Paper Co. $3.40 Cum.	43.95	54.31	3.40	93
U. S. Gypsum Co. 7% Cum.	211.34	300.59	7.00	175½
United Wallpaper Inc. 4% Cum. Conv.	(d)1.35a	(d)0.79m	2.00	20¼
West Virginia Pulp & Paper 4½% Cum.	75.75c	79.45k	4.50	107½
Common Stocks				
APW Products Co.	$1.24	$1.32	$0.25	4
American Writing Paper Corp.	1.61	0.02	0.25	5¼
Armstrong Cork Co.	6.41	7.17i	3.00	45½
Celotex Corp.	6.59c	7.21k	2.00	22⅝
Certain-Teed Prods. Corp.	3.75	3.99	1.15	11¾
Champion Paper & Fibre	5.57f	3.81j	2.00	21⅜
Congoleum Nairn Co.	4.55	5.12i	2.25	29½
Container Corp. of America	10.09	9.54	4.50	33⅜
Crown Zellerbach	6.81f	6.70k	2.00	24¼
Dixie Cup Co.	5.87	6.26	1.00	26¾
Eastern Corp.	5.02	6.51	1.00	12⅞
Flintkote Co.	6.27	5.86m	2.50	25
Robert Gair Co., Inc.	2.83	2.49	0.70	6⅛
Great Northern Paper Co.	4.56	4.55	2.80	36⅞
International Paper Co.	15.02	15.39	5.00	48¼
Johns-Manville Corp.	3.17	4.28	2.00	37⅜
Kimberly-Clark Corp.	4.29	5.16	1.65	20⅜
MacAndrews & Forbes Co.	3.68	3.53	2.50	34
Marathon Corp.	3.39c	4.11k	1.40	19½
Mead Corp.	7.33	7.11	2.00	15⅞
National Container Corp.	4.13	2.86	0.80	8⅝
Paraffine Cos. Inc.	2.40a	2.45m	1.20	17⅜
Rayonier, Inc.	7.30	8.83	2.00	26⅞
Ruberoid Co.	10.88	12.90	3.25	52½
St. Regis Paper Co.	2.66	2.86	0.80	7⅞
Scott Paper Co.	3.02	3.79	2.50	48⅝
Sutherland Paper Co.	6.87	6.43	2.50	34½
Taggart Corp.	1.29	N.A.	0.60	11⅝
Union Bag & Paper Corp.	7.93	8.13	4.00	27⅞
United Board & Carton	4.95b	2.04h	(e)	51¼
U. S. Gypsum Co.	10.00	14.36	6.00	99⅝
United Wallpaper	(d)0.11a	(d)0.10m	(n)	3⅜
West Virginia Pulp & Paper	11.40c	11.33k	4.00	38¼

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/31/47
(d) Deficit
(e) Omited dividend 2/4/49
(f) Year ended 4/30/48
(g) 12 months to approximately 7/31/48
(h) 12 months to 11/13/48
(i) 12 months to approximately 6/30/48
(j) 5 months to 9/30/48
(k) 12 months to approximately 10/30/48
(m) 12 months to approximately 12/31/48
(n) Last payment 25c, 9/16/47
(*) Pro forma
(N.A.) not available

Dividends Declared

Barber-Ellis of Canada, Ltd., has declared a dividend of 25 percent per share, plus 12½ cents bonus, payable March 15 to shareholders of record February 28.

United Board & Carton Corp.—Directors decided to omit the common dividend "in view of the lack of sufficient earnings." The company said the payments of 25 cents each last August and December were made out of surplus.

Eddy Paper Co., Ltd., has declared a quarterly dividend of 25 cents per share on its outstanding Class "A" shares, payable March 15 to shareholders of record on February 15.

Extra Powell River Div.

VANCOUVER, B.C.—Powell River Co. reports that, subject to the Foreign Exchange Control, a final extra dividend on account of 1948 earnings will be paid with the quarterly dividend on March 15. The declaration is expected to be made shortly.

The company has paid $2.75 per share on the common stock on 1948 account. The policy is to disburse approximately 60 percent of the year's net earnings. For the first half of 1948 the company had a net profit of $3,400,086 or $2.53 per share, after providing for a contingency reserve of $400,000 which was equal to approximately 30 cents per share.

As the new No. 8 newsprint machine was brought into operation in the fall, second half earnings are expected to be favorable. If the final extra should prove to be 25 cents per share, it would bring the year's total to $3 per share, compared with $2.75 on 1947 account.

Common Stocks Index

OTTAWA—The index of common stock prices of pulp and paper dropped to 256.9 in December, 1948 compared with 267.6 in November, 1948, for a decline of 10.7, with the principal price changes involving increases for Dryden Paper and decreases for Powell River, Howard Smith and Abitibi, on the base of 1935-39 being equal to 100, the Canadian Government reports.

The report points out that there has been a continuous decline in pulp and paper common stock prices in Canada during the past six months of 1948 in reversal of the upward trend which displayed itself in such prices indexes during the first half of that year. This is shown in the following: January, 261.9; February, 242.7; March, 243.7; April, 256.5; May, 274.1; June, 279.8; July, 275.9; August, 272.2; September, 269.4; October, 266.9; November, 267.6, and December 256.9.

Nashua Stock Split

BOSTON—Nashua Gummed & Coated Paper Co. stockholders on January 29 approved a four-for-one split-up of the company's 54,260 outstanding common shares without par value, of which 8,202 shares are held in the treasury.

Each certificate for common outstanding after that date will be retained by its then holder of record who will receive a new certificate or certificates evidencing three times the number of shares of such stock he held of record immediately prior to the filing of appropriate articles of amendment with the Secretary of the Commonwealth, the company said. The total capital of the company will remain unchanged.

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FOR INDUSTRIAL OR MUNICIPAL WATER TREATMENT PLANTS

"Sure ends cold water floc troubles."

"RIGHT! Warm or cold, ALHYDRO always works."

Regardless of water temperature, clarity or pH through a wide range, the ALHYDRO unit produces a readily controllable concentration of aluminum hydroxide floc. Moreover, ALHYDRO floc is completely stable . . . if broken up will re-form immediately.

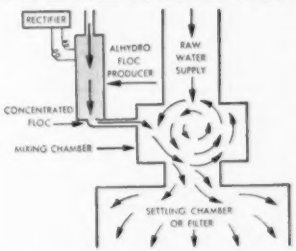
SOLVES CHEMICAL STORAGE PROBLEM

Since the ALHYDRO unit produces floc by low voltage, d.c. electrolytic decomposition of aluminum plates, it makes 69 lbs. of aluminum treat as much water as nearly ¾ of a ton of ordinary coagulants...greatly minimizes storage problems.

SIMPLE AND TROUBLE-FREE OPERATION

The ALHYDRO FLOC PRODUCER requires a minimum of attention and maintenance. One unit measures only 45″ x 13″ x 34″, and will treat an average of 300,000 gallons of water a day. The ALHYDRO unit may be installed singly or in multiples, in existing or proposed water treatment plants.

This installation of ALHYDRO FLOC PRODUCER in your water treatment plant will provide you with these advantages—



- Better water at competitive costs
- Usually eliminates the need for conditioning or correcting water before or after treatment
- Simplicity of operation
- Minimized storage problems
- Easily controlled floc concentration

DESCRIPTIVE FOLDER—FREE!

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ALHYDRO, INC. Department 2C • 516 N. Charles St., Baltimore 1, Md.

Obituary

William G. MacNaughton, 75, an engineer for the Newsprint Service Bureau, New York City, died in his sleep at his home in Yonkers, N.Y., on February 3. Mr. MacNaughton's professional career started in 1902 when he joined the Canada Paper Co. at Windsor Mills, P.Q. In 1904, upon graduating from McGill University, he took a position as chemist at the Canadian Rubber Co., Montreal, where he remained until 1908 when he entered the paper industry as chemist for the Nekoosa-Edwards Paper Co., later becoming supervisor of its pulp and paper mills. During this period he was a member of the advisory committee of the Groundwood Research Laboratory of Forest Products, Wausau, Wis. From 1917 to 1920, Mr. MacNaughton was vice-president and manager of the Inland Empire Paper Co., Spokane, Wash., and in 1920 and 1921 was at Kapuskasing, Ont., during initial development of the Spruce Falls Paper & Power Co. Later in 1921 he was appointed secretary of TAPPI where he remained until 1927 when he joined the Newsprint Service Bureau as engineer. He left the Bureau in 1929 but returned to it in 1936. From 1929 to 1933 he was associated with the International Paper Co. and for the next four years until 1936 was assistant director of the Savannah Pulp & Paper Laboratory, established by the late Dr. Charles H. Herty. Mr. MacNaughton is survived by two sons, two daughters, two brothers and five sisters.

George W. Bowker, 73, who retired as plant superintendent of the Buffalo Envelope Co., Buffalo, N. Y., two years ago, died at his home on January 30. He had been ill about six months. Mr. Bowker came to the Buffalo concern in 1927 after selling his interest in the Richmond Envelope Co., Richmond, Va., of which he was vice-president and founder. Before starting the Richmond firm about 1918, Mr. Bowker had worked in the envelope manufacturing business in Montreal, Holyoke and Atlanta.

Edward F. Marshall, 61, former general manager of the Deferiet, Harrisville and Norfolk, N. Y., mills of the St. Regis Paper Co., died of a heart attack in Orlando, Fla., on February 4. Mr. Marshall was with St. Regis for 31 years until his retirement last July. Surviving him is his widow, who was with him at the time of his death.

Thomas C. Bowen, 63, assistant production manager of the Parsons Paper Co., Holyoke, Mass., until his retirement in 1947, died at his home in West Springfield, Mass., on February 1, following a protracted illness. Mr. Bowen began his papermaking career with the Ticonderoga Pulp & Paper Co., later going to Strathmore Paper Co., in West Springfield and Woronoco, where he rose to superintendent of the mill in the latter town. Before leaving Strathmore, he had become assistant production manager of its four mills. He next became associated with the Rising Paper Co., in Housatonic, as vice-president and general manager. Two years later, he moved to the American Writing Paper Corp., in Holyoke. In his capacity as assistant to the vice-president in charge of manufacturing, Mr. Bowen supervised operations in four divisions of American Writing's many holdings at that time. He was former secretary-treasurer of the Connecticut Valley Papermakers Superintendents Ass'n., and a member of TAPPI.

Willard N. Whitmore, 61, widely known for his lumbering operations in the Upper Ottawa Valley, died in Pembroke, Ont., on January 30, following a brief illness. Surviving Mr. Whitmore are his widow, a son and two daughters.

James Kleeman, 54, head of the Musto Paper Box Co., North Bergen, N.J., died at Alexian Brothers Hospital in nearby Elizabeth on January 29, following a brief illness. Mr. Kleeman's home was in Linden, N.J.

Thomas C. Bowen, 63, assistant production manager of the Parsons Paper Co., Holyoke, Mass., before his retirement in 1947, died in West Springfield, Mass., on February 1.

Letters

Dear Sir:

I was quite pleased to note that you have started printing an Index to the Industrial (or technical) portions of Paper Trade Journal (issue of Jan. 20). I believe that any one in the Library part of the industry will be properly grateful, since without an index so much good material is practically "lost and buried."

I hope that next time you will be able to:

(a) issue these indexes at the end of *each* volume, instead of only at the end of the year. (That allows one to expedite the binding of the Jan.-June copies in July instead of having to hold them until the following January).

(b) issue the index as a separate page, preferably separate from the regular pages of the next volume—perhaps at the end of the last December and June issues—instead of carrying the index as part of a running page in the numbered pages of the next volume. If we remove the 1948 index from the Jan. 20 issue, in order to make a self-contained 1948 volume, we will leave a "gap" in the pages of the 1949 volume, and altho I know what the missing pages mean, it is quite possible that some of our library clients next year or five years from now will merely note that some pages are missing and feel that something valuable has been torn out. In this current example the removal of the 1948 index would spoil the continuation of the story on the Holyoke Hearings—a point of some possible future historical value.

I recognize that this will—or—may cause some extra expense, but it surely will add to the value of our bound copies, and to those of other libraries. I always did regret the TAPPI custom of putting their index in as running pages. Even tho additional indexes could be secured on application to TAPPI, the method seemed less advantageous than a regular index on regular index pages.

Am glad to say that you seem to be making out quite nicely without the TAPPI pages. Have appreciated the many articles you are running to replace the TAPPI section. I think you are doing very well with them.

HAROLD F. COTTER
Librarian
School of Chemistry Library
University, Alabama

Dear Sir:

Your issue dated December 23rd contains a short article concerning our Mills, and as some of the particulars given therein are not quite correct, we are taking the liberty of rectifying them.

Our output at the moment is 30,000 tons of paper, 18,000 tons of chemical pulp and 40,000 tons of mechanical pulp. The capacity of our new paper machine, viz. 8,000 tons, will come in addition to this, and the total output, when our new machine has been put into operation, will be 38,000 tons of paper. All the details given about our new paper machine are correct.

You mention that we have recently installed a continuous cooker, but this is not the case. It was a continuous Bleaching Plant for chemical pulp that we installed, and it has a capacity of 15,000 tons. It is this continuous Bleaching Plant that is the first of its kind in Norway.

It is quite right, as stated in your article, that we have adopted oil-fueling, but only instead of coal, as electricity is still being used in conjunction with the oil.

If it is convenient to you, we should be much obliged if you would kindly publish these corrections.

M. LEFREDIUS
Hunsfos Fabrikker
Vikeland, Norway

Gentlemen:

One Page 47 of your January 27 issue, you have a news item which I sent you about my discontinuing by association with the Johnston Paper Company. Unfortunately, you seem to have gathered the impression from my letter that I am going to Florida to retire, but this is far from the case, and I expect to enter the paper business in that state. I wonder if I might ask you in your next edition to clarify this somewhat, as naturally any idea that I am retiring may be embarrassing in my future relations.

Hoping you will insert a memorandum to this effect, and thanking you in advance, I am,

E. H. VOLLMER
Vice-President
Johnston Paper Co.
Cincinnati 2, Ohio

Finland Rationing Ended

HELSINKI, Finland.—Newsprint rationing in Finland ended on January 25 when Parliament voted down a government proposal to continue restrictions. Its removal from the ration list was not expected to affect exports abroad.

Can you think of any more markets for softer paper products made like this ?

You get better softening plus fire resistance in one low-cost treatment with Du Pont Sulfamic Acid

Here are just a few of the uses for softened paper and paper products which you can make *better* and *more economically* with Du Pont Sulfamic Acid. Just add Sulfamic Acid to the desired amine to get an Amine Sulfamate that softens your paper and also makes it fire-resistant—with a single treatment.

BETTER SOFTENING is assured—even at low humidities—because Amine Sulfamates are more effective over the whole humidity range . . . do not depend entirely on water pick-up.

RETAINS SOFTNESS! Paper softened with an Amine Sulfamate will not lose its softness—even after long periods of normal use. And it can be readily printed or glued. It can also be given *extreme* resistance to yellowing with a single modification of the Amine Sulfamate.

LOW-COST . . . EASILY APPLIED! Du Pont Sulfamic Acid is inexpensive, and added to amines, can be economically and uniformly applied from aqueous solutions by immersion or spray.

Where fire resistance without softening is required, the regular Du Pont Fire Retardants are recommended.

DU PONT TECHNICAL ASSISTANCE is available to help you take advantage of this new development. Just clip the coupon for our samples and technical bulletin on Sulfamic Acid.

DU PONT
REG. U. S. PAT. OFF.

SULFAMIC ACID

*The basic material in making Amine Sulfamates

BETTER THINGS FOR BETTER LIVING. . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room 4069 B
Du Pont Bldg., Wilmington 98, Delaware

Please send me Technical Bulletin on Sulfamic Acid.

Name_____ Title_____

Company_____

Address_____

City_____ State_____

St. Regis' Lozier Urges Enlightened Foreign Policy

WINTER PARK, Fla. — Kenneth D. Lozier, vice-president of the St. Regis Sales Corp., on February 5 urged that the U.S. political foreign relations policy be implemented with an enlightened policy of industrial foreign relations to aid economically floundering nations.

Speaking at the Rollins College Economic Conference here, Mr. Lozier, who for some years has directed advertising, sales promotion and public relations for St. Regis, asserted:

"If Europe is to pull herself up to a level of industrial and agricultural stability, she must be helped by this country, not necessarily by outright grants of money and materials, but by technical assistance to show her how to make the best use of her natural resources, to attain a degree of economic stability that will make the world a better place in which to live."

In a mutual pooling of industrial knowledge and experience, Mr. Lozier said, there would be much that we could learn from other nations.

He cited the St. Regis Paper Co. and others in the industry, itself sixth largest in the country, as an example of technical assistance of mutual benefits among nations, pointing out that many of the modern paper making machines stemmed from a program of technical interchanges such as St. Regis is carrying on with its licensees and customers in Europe and South America.

"In this cooperative effort," he said, "we make known to our overseas associates latest developments in manufacturing and processing, information on new papers for packaging different materials, improved bag construction, progress in making plastics from paper, and offer employee training assistance and many other types of information that will help them for our mutual advantage.

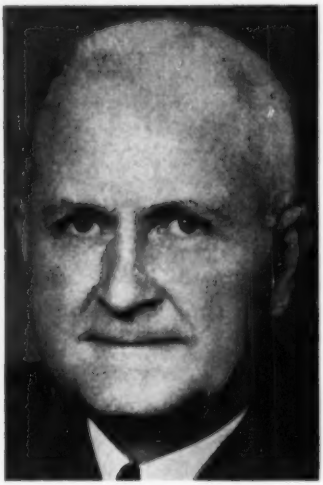
"Expand this kind of technical aid to encompass U.S. industry as a whole," Mr. Lozier added, "and you will have the pattern for a broad educational program to back up our national foreign relations policy, to implement the vast sums and the huge shipments of materials we are sending overseas."

Mr. Lozier pointed out that we in the U.S. do not possess a monopoly of technical knowledge and mechanical skill.

Union Bag Names Three New Vice-Presidents

ALEXANDER CALDER, JR.

JAMES L. KNIPE



T. T. DUNN

NEW YORK—Three of Union Bag & Paper Corp., executives, Alexander Calder, Jr., James L. Knipe, and T. T. Dunn, have been elected vice-presidents of the company. Mr. Calder, Jr., has been assistant to the vice-president in charge of sales, Mr. Knipe has been assistant to the president, and Mr. T. T. Dunn has been resident manager in charge of the company's pulp, paper, paper bag and paper box plant in Savannah. Mr. Calder, Jr., and Mr. Knipe will have their headquarters in the New York office, and Mr. Dunn remains as Savannah manager.

Mr. Calder, Jr., joined the Union Bag organization in 1940. He served in the sales department and as assistant to the director of industrial relations, and most recently was assistant to the vice-president in charge of sales. During the war Mr. Calder, Jr., was an intelligence officer with the Board of Economic Warfare, and subsequently served for two years as a naval officer in the Pacific.

Mr. Knipe joined the firm as assistant to the president in 1947. In 1946 he set up an economic research staff for the Hawaii Employers' Council in Honolulu. From 1941 to 1946 he served as a lieutenant in the Navy, concerned with financial and economic aspects of the Navy's military government work.

Mr. Dunn came to Union Bag in Savannah in 1940 from Bogalusa, Ala., where for 13 years he was chief engineer of a paper mill there. His first position with Union Bag was assistant superintendent. He later was named manager of the pulp and paper division, and in 1945 was promoted to resident manager in charge of all Union Bag's Savannah operations, where it operates the largest integrated pulp, paper, paper bag and paper box plant in the world.

"Other nations also possess natural resources—many in abundance greater than ours—knowledge and skills," he said. "But individually, as separate nations, they are situated in the world geographic scheme of things as would be Florida, Maine, Michigan, New York, New England and other states, if these were separate political and economic entities, without common cause, a common bond to tie them together in a pooling of industrial interests."

Mr. Lozier suggested that the economics of world geography have conspired to pit two enormously powerful nations, the United States and Russia, against each other in a contest to see which one is to become the dominant factor in world affairs — the Russian concept to rule the world by forcibly imposing her ideology upon her people and others; the United States seeking to keep world peace by demonstrating to other nations the advantages of the free enterprise system in developing industrial capacity.

Let us hope, Mr. Lozier concluded, that the European and other nations, faced with a choice between the two will come to the realization that combining their productive resources in a federated economy is not only a highly desirable step to take, but that it is a necessary step if human decency and dignity are to be perpetuated in the Old World.

Hungary's Caustic Soda

WASHINGTON—Production of caustic soda in Hungary for the first half of 1948 was 1,950 metric tons, 26 percent above pre-war but only 87 percent of the output called for in the 3-year plan, according to a review of this industry by the Office of International Trade. The industry is nationalized.

Want Wage Hike

SPRINGFIELD, Mass.—Package Machinery Local 220, United Electrical Workers, CIO, on February 1 made known its intention to seek wage increases, effective immediately, for all production workers.

Merrimack Plan Doomed

CONCORD, N. H.—A proposed Merrimack River Power Authority, advocated by paper manufacturing interests in the state, on February 5 appeared doomed to defeat for the second time.

Tap Alaska, Urges CIO

WASHINGTON—The American Newspaper Guild (CIO) recommended on January 27 development of untapped resources in Alaska as its solution to the "world-wide newsprint shortage".

Wood Poaching Bill

OTTAWA—A bill to provide for the immediate arrest of persons caught in the act of cutting wood on Crown lands without authority has been passed by the Legislative Assembly of Quebec.

Power Co. Presents Mills' View

HOLYOKE, Mass. — On the eve of Federal Power Commission hearings on the question of harnessing the Connecticut River power facilities at the Holyoke Dam, hearings which will get under way here on February 15, the Holyoke Water Power Co. has begun placing full-page ads—in the forms of open letters—in the daily newspapers, explaining, in detail, the various aspects of the case.

Here is a typical letter addressed "to the people of Holyoke," the subject, "Our License Application":

"It has seemed to us that, before the public hearing on February 15, we should tell you about the plan which we have proposed to the Federal Power Commission in our license application.

"Our plan proposes the immediate construction of one 15,000 kilowatt hydro-electric unit at our dam. This unit will take water from the river just above the dam and will discharge it into a tailrace channel which will extend to a point downstream from the South Hadley bridge. The construction of this new unit is estimated to be about four million dollars.

"We also propose to retain the canal system. The canals will function in the future much as they do now to bring water to the mills for power and process purposes. The mills will retain and operate their water wheel equipment on a modified basis. Fire protection and other advantages now provided by the canals will remain for the benefit of the city.

"The new 15,000 kilowatt hydro-electric unit will be operated in combination with the existing hydraulic installations on the canal system to make the most efficient practical use of the river water at all times.

"It should be mentioned that our company has already installed in its power plant adequate steam electric generating equipment to supplement this new hydraulic development plan at times of low river flow.

"Arrangements have been made to finance this plan and the construction of the new 15,000 kilowatt unit can start without delay, upon Federal Power Commission approval."

The letter — and subsequent advertisements — was over the signature of President Robert E. Barrett, Jr.

Another ad, the subject, "Industrial Development," had this to say:

"While the issues before the Federal Power Commission on February 15 are primarily those of hydro-electric power development, the issues before the people of Holyoke are more far-reaching. Some of the fundamental policies upon which our city has been built and which are still operating may be seriously affected by the outcome of these proceedings. One such policy is the industrial development work of our company.

"The canal system was laid out nearly 100 years ago for the purpose of changing an area of scattered farms into a manufacturing city. To start the industrial community, the builders of the dam and canals constructed the first factories — cotton mills and machine shops. Later, other manufacturers came and built their mills to take advantage of the low-cost water power and process water. Thus, over the past century, Holyoke has grown into a prosperous industrial city.

"Throughout the years, many new industries have been attracted to Holyoke to occupy mills which we ourselves have built or renovated. At the present time 25 industries, employing more than 1,000 people, are located in space provided by this company. During the past three years, mill buildings have been renovated for 15 new industries.

"The policy of working for the industrial development of Holyoke which we have followed for so long has been sound. Both the city and our company have benefited."

Still another advertisement-letter took as its subject "Electrical History," and told this to the public:

"One of the questions which we have been asked is why our company is selling electric power today although the city of Holyoke purchased our electric business in 1902.

"In 1903, following the purchase of our electric business by the city of Holyoke, our company, with the approval and support of the Board of Aldermen, the mayor and the manager of the Gas and Electric Department, received authority from the Massachusetts Legislature to generate electricity and to sell it in quantities of not less than 100 horsepower. The records show that, at that time, it was the opinion of the Gas and Electric Department that it would never be able advantageously to furnish electricity at a profit to the city in quantities greater than 65 horsepower.

"There were few industrial customers in Holyoke in 1903 that were using 100 horsepower of electricity. However, this company, continuing its faith in the future of our city, had the foresight to see that industry in Holyoke would expand and would need large amounts of electric power.

"The company thereupon set about to build a hydro-electric and steam power system. It has continually expanded that electric generating system during the succeeding years to supply low-cost electricity for the large power users.

"Thus, under the pattern of operation established in 1903, the Gas and Electric Department plant and the company's plant have grown and prospered and the people of Holyoke have benefited."

Whiting Quits Commission Post

HOLYOKE, Mass.—Fairfield Whiting, paper manufacturer and a proponent of the move to put power under the federal government, has resigned from the Municipal Gas and Electric Commission.

It has been the Municipal Gas and Electric Commission which has favored the power change, with the interests of virtually all paper mills being tied up with the Holyoke Water Power Co., which is custodian of the century-old indentured rights of the paper mills to power from the three-level canal system.

Mayor Henry J. Toepfert immediately named Francis C. Heywood, president of the Marvellum Co., Inc., and terasurer of the Plastic Coating Co., to fill the vacancy on the commission.

The resignation of Mr. Whiting, secretary of the Whiting Paper Co., and Whiting & Co., paper manufacturers, caused considerable speculation as to the future position of the Municipal Gas and Electric Department. Mr. Whiting and Commissioner John J. D. McCormick formed the majority of the three-man commission which favored the full development of the Connecticut River at the Holyoke Dam by the municipal department.

With Mayor Toepfert opposed to the department's application now before the Federal Power Commission, it was felt his appointee might be one who would not look with favor on the department's petition, and thus, with Commissioner Edward D. Hallisey, could record the commission as opposed to the move.

It was felt that Mr. Heywood might well be a middle-of-the-roader on the power issue, in order to gain confirmation of his appointment from the Board of Aldermen.

There was another development in the power issue, as Americans for Democratic Action announced its intention of supporting the Municipal Gas and Electric Department in its efforts to harness Connecticut River power here.

ADA pointed out that regional power development tops the list of 1949 goals, and that its representatives will be on hand to lend support to the federalization program when the Federal Power Commission opens its hearings here on Feb. 15.

Army-Navy Purch. Off.

Army Bids Received

Forty-four (44) bids have been received on: QM-30-280-49-757 covering Pads Columnar, Pads—Memorandum, Paper, Blotting and Paper, Carbon. Directive quantity: 1,091,650 each. Price range from: $.0017 to $3.65 M. Total quantity on all bids received: 13,925,000 ea. This procurement is for the U. S. Army.

Army Invitations to Bid

QM-30-280-49-872—Subscriptions (Thru 152)—Various Titles and Various quantities. Bids will be opened 25 Feb. 1949 at 1:30 PM (EST) at the New York office. Procurement is for Government and Relief in Occupied Area (Japan and Korea).

QM-30-280-49-873—Subscriptions (1 through 37—various titles.—Various quantities. Bids will be opened 15 Feb. 1949 at 2:00 PM (EST) at the New York office. Instructions to be furnished successful bidders on or before 28 Feb. 1949. Procurement is for U. S. Army.

QM-30-280-49-881—Paper, Photo, 18" x 350'—108 rolls. Bids will be opened 16 Feb. 1949 at 11 AM (EST) at the New York office. Delivery to be completed during May 1949. Procurement is for U. S. Army.

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1949		Corresponding Weeks—1948	
December 25 '48	74.3	December 27 '47	74.9
January 1	73.3	January 3	100.3
January 8	94.5	January 10	99.4
January 15	94.8	January 17	99.9
January 22 (Revised)	95.3	January 24	101.1
January 29	**95.3	January 31	**103.6

** Capacity in Tons—178,114. ** Capacity in Tons—172,008.

COMPARATIVE MONTHLY SUMMARIES

1948						1949	
Jan.	100.1	May	100.5	Oct.	‡99.1		
Feb.	99.8	June	95.7	Nov.	‡97.3	Jan.	‡90.6
Mar.	100.8	July	85.3	Dec.	‡87.1		
Apr.	100.8	Aug.	96.8				
		Sept.	‡91.8	Year Avg.	‡96.3		

‡ Preliminary Ratios.

COMPARATIVE YEARLY SUMMARIES

	1942	1943	1944	1945	1946	1947	1948	1949
Year to Date	104.3	87.2	88.6	86.7	94.7	103.1	100.9	95.0
Year Average	90.4	87.8	88.1	89.4	101.1	104.3	96.3	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1949		Corresponding Weeks—1948	
December 25 '48	87	December 27 '47	77
January 1	46	January 3	78
January 8	79	January 10	99
January 15	93	January 17	104
January 22	92	January 24	104
January 29	88	January 31	103

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1948	99	100	102	102	100	94	81	92	91	96	94	84	95
1949	88												

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

MEISEL MACHINERY IS HELPING IN ALL FIELDS

Cigarette Condenser | Wax Grease Proof | Photographic Snap-out Forms | Jet Propulsion Aero-engine Parts

MEISEL PRESS MFG. CO. 950 Dorchester Ave., Boston

QM-30-280-49-912—Binders, Loose-Leaf, (various)—150,000 each. Bids will be opened 16 Feb. 1949 at 11:30 AM (EST) at the New York office. Delivery: to be completed June 1949. Procurement is for the U. S. Army.

QM-30-280-49-864—Paper (Various machine and bond)—422,300 reams. Bids will be opened 14 Feb. 1949 at 2:30 PM (EST) at the New York office. Delivery: to be completed by 30 June 1949. This procurement is for the U. S. Army.

QM-30-280-49-883—Cards, Guide and Index (Various sizes and types)—4,775,000 ea. Bids will be opened 21 Feb. 1949 at 3:30 PM (EST) at the New York office. Delivery: to be completed during June 1949. This procurement is for the U. S. Army.

QM-30-280-49-840—Cases, Liner, Various—166,500 ea. Pads, Fiberboard, solid—181,750 ea. (Various sizes). Bids will be opened 16 Feb. 1949 at 10:00 AM (EST) at the New York office. Delivery: to be completed during April 1949. This procurement is for the U. S. Army.

QM-30-280-49-884—Folders, File, Manila (Various sizes)—900,000 each. Index Binders, Alphabetical leather tabs—2,000 sets. Bids will be opened 23 Feb. 1949 at 2:00 PM (EST) at the New York office. Delivery: to be completed during June 1949. This procurement is for the U. S. Army (National Guard).

QM-30-280-49-882 covering Folders, File, Manila, etc.—460,000 ea. Folders, (Various sizes). Bids will be opened 24 Feb. 1949 at 3:00 PM (EST) at the New York office. Delivery: to be completed during June 1949. This procurement is for the U. S. Army. (ORC).

QM-30-280-49-933—Cards, Guide, Pressboard, Gray, Blank, Self-Tabs, 1/5 cut w/o lower proj. 9½" x 14⅞"—600,000 each. Bids will be opened 10 Feb. 1949 at 11 AM (EST) at the New York office. Delivery: to be delivered during April 1949. This procurement is for the U. S. Army.

Army Awards Made

Awards have been made on:

QM-30-280-49-661 covering Paper, Wrapping, Kraft #2 rolls (9" diameter), to:

Acme Paper Co., 444 Drum St., San Francisco, Cal.—10,413 lbs. @ $.1025 to $.13.

Crown Willamette Paper Co., Div. Crown Zellerbach Corp., 343 Sansome St., San Francisco, Cal.—710 cwt. @ $7.67 to $7.92 cwt. Directive quantity was 8,900 rolls. This procurement is for the U. S. Army.

Navy Invitations to Bid

Inv. No. 4207—Paper, writing, sulphite—32 x 42—125,000 sheets. Bids will be opened 4 Feb. 1949 at the New York office. Delivery: 3 weeks to MOIC, NMC, Bethseda, Maryland.

Inv. No. 4075—Containers, Pads and Liners, Fibreboard, 64,000 sets. Bids will be opened 8 Feb. 1949 at the New York office. Delivery: to SOIC, NCD, Brooklyn, N. Y.—15,000 monthly Feb., Mar., April, May and June, 1949.

Inv. No. 4135—Paper, coated, blanks for car cards, various—230,000 sheets. Bids will be opened 23 Feb. 1949 at the New York office. Delivery 45 days to OIC, Navy Recruiting Bureau, Baldwin, L. I.

Inv. No. 3946—Tape, masking, kraft, paper, various—50,580 rolls. Bids will be opened 11 Feb. 1949 at the New York office. Delivery: to various destinations during Feb., Mar., April, May and July and August, 1949.

Carload Traffic

(Continued from page 11)

(Amounting in 1946 to 4.66 percent of freight originated by all U. S. railways).

(b)—Originations and terminations by Mexican and Canadian railways that involve traffic delivered to and received from U.S. Class I railways for further haul and ultimate termination.

Therefore, in the case of Newsprint Paper, which is predominantly originated by Canadian lines, the number of tons terminated represents more nearly the volume handled by Class I railways. The difference between newsprint paper originated and that terminated provides a rough estimate of United States carload rail imports from Canada for a particular period.

If used carefuly, the ICC data of rail originations and terminations should prove a useful adjunct in statistical studies of production and consumption relative to particular states or areas. The data may find broad application in making effective decisions as to locating new plants or other types of business establishments, in studying geographical marketing patterns for various types of commodities, and in appraising the importance of rail transportation.

The 1948 intercoastal shipping statistics, published by the U.S. Maritime Commission, and domestic traffic by individual ports issued by the War Department, Corps of Engineers, contain the same commodity breakdown as the ICC statistics of rail carload originations and terminations.

*Best Buy in
RUBBER COVERED
ROLLS
* Buying opinion of more than 150 important paper mills for over 30 years.
CINCINNATI
THE CINCINNATI RUBBER MFG. CO.
CINCINNATI 12, OHIO

CLEARING HOUSE

HELP WANTED

THE BEST JOB AVAILABLE
MILL MANAGER

IF YOU HAVE HAD ADEQUATE EXPERIENCE IN MANAGING A PAPERBOARD MILL MAKING FOLDING GRADES, THEN, IN OUR OPINION, WE HAVE AVAILABLE THE BEST OPPORTUNITY IN THE COUNTRY.

THIS POSITION INVOLVES COMPLETE MANAGEMENT OF A ONE-MACHINE MILL LOCATED IN THE EAST. IT INCLUDES UNUSUAL FUTURE OPPORTUNITY AND PRESENT HIGH COMPENSATION.

IN YOUR REPLY STATE COMPLETE PERSONAL QUALIFICATIONS, PREVIOUS POSITIONS HELD AND SALARY EXPECTED.

ADDRESS BOX 49-67 CARE PAPER TRADE JOURNAL. F-24

HELP WANTED

PAPER MILL CLERK, salesman, with considerable practical and technical background in the manufacture of sulphite (rayon) and Kraft pulp, wide range of papers and all round commercial experience (administration line, exportation, foreign correspondence, cost-accountancy, etc.) with long practice in doing difficult translation work of the Research-Development-Manufacture and Patent Literature (GERMAN, ENGLISH, FRENCH, ITALIAN), seeks opportunity. Address Box 49-80, care Paper Trade Journal. F-10

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.
TF

WANTED

West Coast sulphate pulp and paper mill has splendid opportunity for combination mechanical engineer-draftsman. High starting salary. Write giving full particulars as to age, experience, etc., to:

St. Helens Pulp & Paper Co.
St. Helens, Oregon
TF

HELP WANTED

MEN WANTED
Positions Open

General Manager, New England Fourdrinier machine paper mill; two superintendents, or general superintendent for Fourdrinier machine mills in Mid-West; superintendent for rag and sulphite paper mill; night superintendent, mill making colored sulphite writings and specialties.

Mechanical or Electrical engineering graduates for development of new papers, also power and electrical departments; design engineers and project engineers; chemists and chemical engineers.

Comptroller, internal auditor, industrial engineer and personnel trainee; coating foreman and color mixer; paper mill salesmen to cover New England and other Northern states.

Machine Tenders and Back Tenders.

We invite correspondence (confidential) with mills seeking executives and with executives seeking new positions.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston, Mass. F-10

PAPER CONVERTING
FOREMAN
WANTED
FOR MILL LOCATED IN EAST

Must have supervisory experience in tissue and towel converting as well as in operation and maintenance of paper converting equipment.

Mechanical Engineering Degree desirable but not essential, age not over 45. Salary open. Permanent position with excellent future.

Write giving complete background and experience to

W. B. GOODMAN
217 BROADWAY
New York (7), N. Y.
F-10

SUPERINTENDENT—New England high grade specialty cylinder machine mill. Practical paper maker wanted who can train and supervise without sacrifice of production and quality. Write in full detail giving age, experience and salary expected. Address Box 49-47 care Paper Trade Journal. F-10

RATES FOR CLASSIFIED ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.

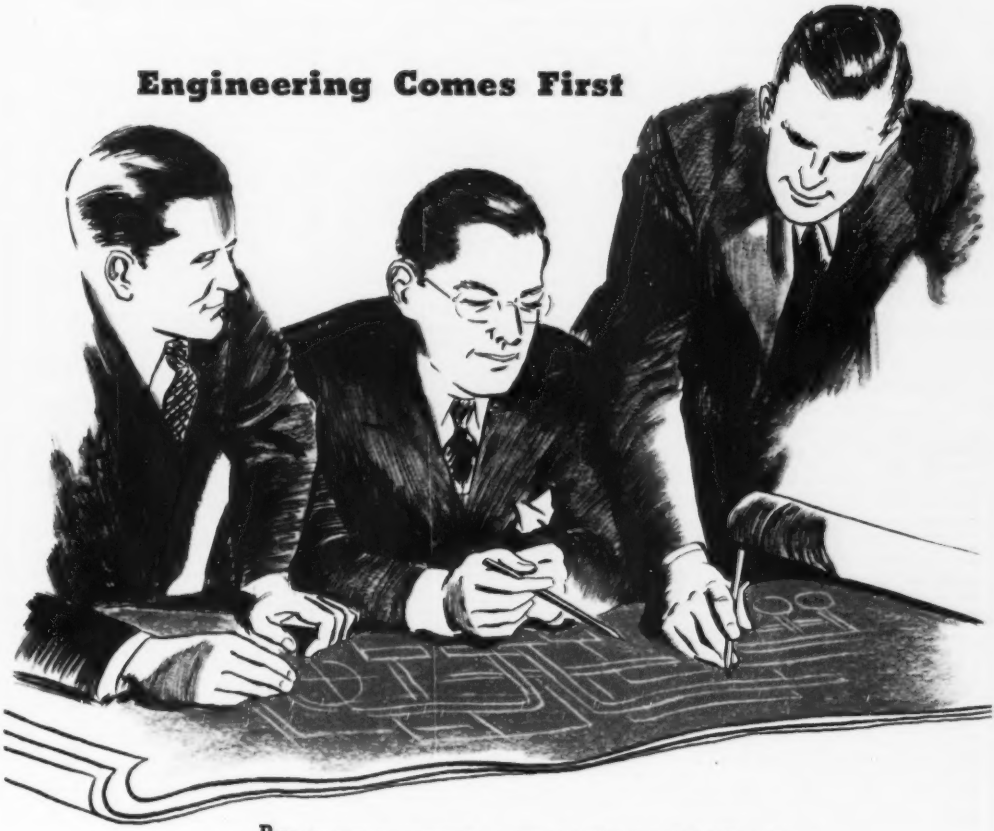
WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

Engineering Comes First



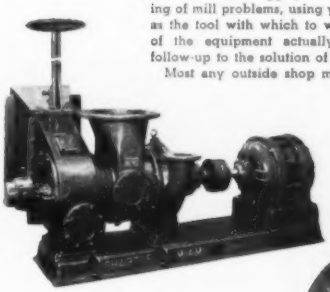
PULL the string on any working day in the entire year and you'll find ten, fifteen or twenty Shartle-Dilts salesmen and engineers at the mills working on paper mill problems.

Their job is not merely to sell Hydrapulpers, HYDRAFINERS, agitation equipment, pumps, etc. Theirs is a bigger, broader job—the solving of mill problems, using years of experience as the tool with which to work. The selection of the equipment actually becomes just a follow-up to the solution of the problem itself.

Most any outside shop might build a stock pump or valve or a chest agitator, but no outside shop could build such things in the light of mill experience—seasoned knowledge of paper stock characteristics and behavior, or with an understanding of other related mill equipment.

Realizing that "Freddie Fiber" is a cantankerous and tricky little "fellow" to handle, isn't it far safer to look to men who know him for ways to handle him?

Entrust your pumping and agitating problems to experienced engineers—Shartle, at Middletown, and Dilts, at Fulton.



Shartle Bros. Machine Co.

MIDDLETOWN, OHIO

Dilts Machine Works

FULTON, NEW YORK

Divisions of
THE BLACK-CLAWSON COMPANY, HAMILTON, OHIO
Western Sales Office: Mayer Bldg., Portland, Oregon
Associate: ALEXANDER FLECK LIMITED, Ottawa, Canada

HELP WANTED

Technical Sales Position
PAPER CLAY

Young man, preferably technical graduate with actual production experience in papermill, wanted for sales and technical service position involving both filler and coating clay. Replies confidential. Please give details.

Industrial Products Division
J. M. Huber Corporation
342 Madison Avenue
New York 17, New York
F-10

WANTED — Machine Tender and Back Tender for straight Fourdrinier running High Grade Tissues. Flower City Tissue Mills Co., Rochester, 12, N. Y. M-3

WANTED
PAPER RESEARCH CHEMIST

to supervise group of 6 to 8 men on development of paper products in research laboratory of upper midwest manufacturer of bleached groundwood, sulphite and kraft printing and converting papers. Must be well grounded in paper chemistry and manufacturing processes with development experience in these fields. Prefer man 30 to 40 years old with a good knowledge of book grade bleached papers and enamel grade coated papers. In reply give personal history, training, experience and salary expected.

Address Box 49-52, care Paper Trade Journal. TF

WANTED
CHIEF ENGINEER

to take complete charge of Fox River Valley (Wisconsin) Paper Mill Power Plant, supervising the operation and maintenance of high pressure boilers, turbines and auxiliary equipment. Man with technical and practical background preferred. Excellent opportunity to use initiative and supervisory ability.
Give complete personal and business history on letter of application. All replies held confidential.
Address Box 49-66 care Paper Trade Journal.
F-24

PRESSMAN—Experienced on rotary multi-color presses, coffee bag experience preferred but not essential, excellent opportunity for person with right qualifications, state full details. AMERICAN BAG AND PAPER CORP., Water & South Sts., Philadelphia, Pa. F-10

SITUATIONS WANTED

FELT MILLS—Experienced engineer and mastermechanic has invented and patented several products and processes, offering new and wide markets for asphalt felts, would like to contact reliable company interested in finding new outlets for their felt. Will consider sale of patents alone, or with expert engineering services in development of production and marketing new product. Box 49-79, Paper Trade Journal. F-24

TO THE BUSY EXECUTIVE OR OWNER —Can you use a man you can literally trust with your life? Experienced in paper converting field, broad knowledge, mature judgment, good appearance. Write with complete confidence to Box 49-44 care Paper Trade Journal. F-10

PAPER BAG SPECIALTIES and Envelopes. Top flight mechanic, versatile, resourceful, good education, desires supervisory or heavy responsibilities. Address Box 49-45 care Paper Trade Journal. F-10

SITUATIONS WANTED

MAN CAPABLE OF BUILDING a specialty bag or envelope plant, from the ground up, desires connection with domestic or foreign concern. Address Box 49-43 care Paper Trade Journal. F-10

PLANT MANAGER—Thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 49-15 care Paper Trade Journal. F-24

SUPERINTENDENT or ASSISTANT—Thorough experience on Fourdrinier and Yankee Machines making toilet, napkins and light weight specialties, news and Kraft. Desires position with progressive company. Address Box 49-61 care Paper Trade Journal. F-17

SUPERINTENDENT AVAILABLE — At once. Thoroughly experienced Cylinder, Harper or straight Fourdrinier machines. Can solve stock trouble to meet test or quality. Guarantee results all grades. Address Box 49-64 care Paper Trade Journal. F-10

CHIEF ENGINEER or Assistant Manager—Mechanical Engineer, college graduate, age 40, 20 years experience in all phases of construction maintenance, plant layout and operation. Presently employed. Desire change. Address Box 49-62 care Paper Trade Journal. F-10

MECHANICAL ENGINEER. Desires position as Plant or Resident Engineer. Qualified by 26 years experience in chemical and semi-chemical pulp, paper and board mills. Power, maintenance and construction supervision. Address Box 49-40 care Paper Trade Journal. F-17

CHEMIST — EXPERIENCED CHEMIST AVAILABLE. Address Box 49-38 care Paper Trade Journal. M-3

CHEMICAL ENGINEER—Experienced, laboratory organization, pilot plant, testing stations, test methods, quality control, processes, analyses. Address Box 49-39 care Paper Trade Journal. M-3

ENGINEER, Plant or Master Mechanic. College training. Good draftsman. 20 years experience, Steam, lumber, paper, chemical plants, construction and maintenance. Available at once. Box 49-34 Paper Trade Journal. F-24

SUPERINTENDENT—Twenty years experience on Yankee and straight Fourdrinier and cylinder machines, producing facial, toilet, napkin and towelling papers. Mechanical background with excellent production and labor relations record. Address Box 49-73 care Paper Trade Journal. F-24

CHEMICAL ENGINEER—Sixteen years experience in pulp, paper and allied industry in research, inspection and control, desires development work where knowledge of paper and pulp processing will be of value. Address Box 49-69 care Paper Trade Journal. F-24

FOR SALE

FOR SALE

1—102" Cameron Slitter and Winder Type 18. 106" drums. Rewind capacity 60" diameter.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N.J.
Tel. Bigelow 3-3720
J-20

FOR SALE—EMBOSSER, B. F. Perkins, 45" now in full operation. Complete including steel engraved roller and two paper rollers unwind and rewind. $3500.00. Selling to make room for new machine. JOSEPH M. KATZ & COMPANY, Paper Square, Pittsburgh, 6, Pa. TF

FOR SALE

1—90" Seven Cylinder Board Machine complete with: two Primary Presses; three Main Presses; 36" Dia. Stack Dryers; two Calender Stacks; two spool Reel; Langtson Winder.

1—110" Moore & White Fourdrinier designed for 50' wire. Can be rebuilt to suit your needs.

2—Press Sections complete. Rolls 106" face.

1—Cast Iron End Vat with 36" x 92" mould, anti-friction bearings.

2—56" x 52" E. D. Jones Rolls complete with 1500# tubs.

1—1000# Dilts Beater complete with roll 50" x 44".

1—Sturtevant Bale Pulper with anti-friction bearings complete with conveyor, speed reducer, etc.

1—Noble & Wood Monarch Jordan—New fillings.

2—Emerson No. 1 Jordans.

1—Jones Imperial Jordan with New Bahr Bros. Fillings.

1—Miami No. 2 Jordan, New shell filling.

1—Claflin Refiner.

1—Shartle High Speed Refiner. Anti-friction bearings.

1—36" Dia., 96" face cylinder mould. Iron end vat if desired.

1—42" Dia. x 84" face Cylinder Mould.

1—NEW 36" Dia. x 76" face Hollow Shaft Cylinder Mould.

20—NEW 36" x 84" Moore & White Dryers tested for 50# pressure complete with double deck frames.

10—Used 36" x 84" dryers with double deck frames.

13—36" x 68" Rice Barton dryers complete with frames, gears and bearings.

5—48" x 160" Pusey & Jones dryers.

20—36" Dia., 90" face Dryers with vertical frames.

6—28" x 104" face Moore & White Dryers with Vertical frames in one battery.

2—Vickery Felt Conditioners: One for 86" machine; One for 110" Machine.

1—New 15" x 90" Millspaugh Suction Couch Roll. Never out of original shipping box.

1—18" Dia. x 110" Millspaugh Suction Couch Roll drilled for 96" wire.

1—Moore & White 110" four drum winder.

2—Hamblet Sheeters with Moore & White Layboys: One 104"; One 92".

1—Moore & White Layboy 102" hour pile, three section with Maxon Automatic counter.

2—Two Spool Vertical Reels; One 110" and One 90".

1—Waterbury Variable Speed Drive, Type C, No. 20.

NEW Brass Felt Rolls 6"—7"—8" Dia., lengths up to 120".

All Size Press & Couch Rolls!

Large and Small Centrifugal & Plunger Pumps.

Approximately 500 rubber covered press rolls and brass covered press rolls also brass felt rolls, calender rolls, etc., various diameters and lengths, can machine to fit your needs.

"Every pound of paper is Made on Used Equipment."

OSBORNE
PAPER MILL EQUIPMENT CORP.
FULTON, N. Y. **Tel. 54**
F-10

FOR SALE

BARKERS

1—8' Carthage Disc Barker

BEATERS

3—1000 lb. Dilts Beaters—Iron Tub.
1—800 lb. Beater—iron tub.

BRASS PELT ROLLS

9—4" diameter x 140" face (with bearings).

BREAST ROLLS

1—100" x 14".
9—114" x 14".
1—120" x 14".

CALENDER STACK

1—72" 5 roll Calendar Stack.

CRUSHERS

1—18" x 18" Jeffrey Single Roll Crusher

CYLINDER MOULDS

1—86" diameter x 80" face.
1—80" diameter x 72" face.
1—76" diameter x 79" face.
1—42" diameter x 88" face.

DECKER

1—Decker—48" diameter x 84" cylinder mold (New).

DRIVES

2—#4 Reeves Drives.
1—#2 Reeves Drive.
1—Smith & Winchester mortise gear Drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2:16 to 1. 900 RPM.
1—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1)
2—Smith & Winchester Mortise Gear Drives with 20" diameter clutches—Ratio 8 to 1.

DRIVES (Angle)

1—General Machine Company 16 : 1.
1—Philadelphia 50:1 — 1 h.p. — 1200 r.p.m.
2—Philadelphia 21⅓:1 — 3 h.p. — 1200 r.p.m.

V-BELT DRIVE

1—81⅛" diameter x 7½" face, 5 grooves.
1—16½" diameter x 7½" face, 5 grooves. (With clutch).

DRYERS

9—36" diameter x 76" face.
1—48" diameter x 91" face.
1—48" diameter x 94" face.
8—42" x 120" (Baby Dryers)
2—36" x 143".
1—24" x 130".

FLAT SCREENS

2—12 Plate Murray Dunbar Flat Screens.
1—8 plate Packer Type Flat Screen.
1—6 plate Shartle Flat Screen.

HYDRAULIC PRESS

1—Watson-Stillman Co. (Platen 24" x 24").

JORDANS

1—Noble & Wood, Pony Monarch, Belt Driven.
2—Noble and Wood—Mammoth Type.

MISCELLANEOUS

1—Caustic Mixer.

MOTORS

2—5 h.p. ball bearing—splash proof motors —3/60/440. 1160 r.p.m.
1—½ h.p. ball bearing—splash proof gear-head motor—3/60/440. 1725 r.p.m.
1—2 h.p. ball bearing—splash proof gearhead motor—3/60/440. 1725 r.p.m.

PRESS ROLLS

Various sizes.

PULLEYS

Various cone and assorted pulleys.

PULP STACKER

1—Link Belt Company Pulp Stacker, 30 ft. conveyor, 2½ ft. wide, self propelled, with motors.

PULPER

1—Jones Pulper. Complete with motor and drive.

PUMPS

2—Weil Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
1—Goulds Sump Pump—50 g.p.m.—20' head —including motor.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REEL

1—72" Beloit Reel.

ROLLS

800—Brass tube-steel tube—rubber covered iron rolls—various sizes.

SAVEALL

1—#5 Bird Saveall.

SCREEN PLATES

30 Plates cut .016.
10 Plates cut .008.
Also other sizes and cuts in stock.

SHEETER

1—136" Moore & White Sheeter, duplex, with layboy.

SLITTERS AND WINDERS

1—62" Cameron—Type 10-10-AJ.
1—42" Cameron—Type 28-8-7 (shear cut).
1—72" Cameron—Type 28-8-7-D (shear cut)
1—42" Cameron—Type 40-4-B.
1—42" Cameron—Type 24-2A.
1—50" Cameron—Type 24-2L.
1—42" Cameron—Type 9-5.
1—56" Cameron—Type 24-2A.
1—30" Langston.
1—42" Cameron Constant Tension, with pneumatic control
1—102" Cameron—Type 18.

SQUEEZE ROLLS

2—Rubber Squeeze Rolls, 20¾" diameter x 102" face.

STOCK PUMPS

1—10 x 20 Shartle Duplex.
4—7 x 16 Shartle Duplex.
Numerous other Centrifugal Stock Pumps. Advise as to your requirements.

SUCTION COUCH ROLLS

1—Sandusky 14⅞" diameter x 103" drilled face.
1—Sandusky 22" diameter x 119" drilled face.

SUCTION PRESS ROLLS

1—Downingtown Suction Press Roll 18" diameter x 66" drilled face.

TRIMMER

1—56" Smith & Winchester—Undercut.

TURBINE

1—150 h.p. Westinghouse Type C-Gear Turbine (Recently rebuilt).

VACUUM PUMPS

1—#4 Nash Hytor Vacuum Pump.
1—Sandusky 8 x 10.

WAXING MACHINE

1—62" Mayer Waxing Machine.

YANKEE DRYERS

1—8' diameter x 175" face.

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Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.

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1—Pusey and Jones Fourdrinier Wet End, 133" x 61'2" wire, with 25" suction couch.

34 dryers, Moore and White, 48" x 126", with rope sheaves, bearings and packing glands.

1—Yankee Dryer, 10' x 132", Beloit, with bearings, ground for MG finish, cast-iron, 45 lb. steam pressure. Free of defects.

1—Haug Refiner, Size 3, Type 3, 8 rolls. Anti-friction bearings. Used 10 months.

1—Gould Stock Pump, Fig. 3105, 8" x 12", anti-friction bearings, coupling, base.

1—8 roll Calender stack, 124" wide, 6 intermediate rolls, 10" diam., four of these rolls bored for steam, 2 rolls, 16" diameter. All rolls newly ground flat.

1—82", 5 roll calender stack.

1—82", 7 roll calender stack, with lifting screws and levers, doctor blades.

1—106" Beloit calender stack, 9 roll, complete.

1—114", 7 roll calender stack.

1—Mammoth Type D Jordan, ⅝" double steel filling, direct connection.

1—25" Sandusky Suction Couch Roll, 137" drilled face, complete.

1—22" Sandusky Suction Press Shell, 138" drilled face.

1—81" Sandusky Suction Couch, 14.9" diameter., complete

1—62" Sandusky Suction Press, 14.9" diameter., complete.

1—Beloit, duplex pump, 10" x 20". Sacrifice for quick sale.

1—Beloit Triplex Pump, 10" x 20". New in 1941.

1—Lawrence Fan Pump, 8" x 10", belt drive.

1—Lawrence, 4" x 6", belt driven.

1—Beloit Reel, 2 cast-iron drums, 103", extra spool, all accessories for drive

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P. O. BOX 40 • PHONE 3694-J • LOCKPORT, NEW YORK F-10

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BEATERS
1—Iron tub 84x84 Shartle breaker
1—Diffs high speed with roll 56x48

CUTTERS
1—130" Horne duplex with duplex layboy
1—100" Hamblet duplex with duplex layboy
1— 94" Clark single with layboy
1— 84" Clark single with layboy
1— 76" Clark
2— 48" Hamblet

DRYERS

1—12 ft. x 100" Yankee	—48 110"
1—12 ft. x 138" Yankee	2—48 x 100"
2— 8 ft. x 174" Yankee	1—48 x 86"
5— 5 ft x 174"	16—36 x 65"

FOURDRINIER PARTS
1—Wire 58' x 110" anti friction with 18" suction couch and three sets presses, rolls 20 x 100".
1—100" Fourdrinier Part with 30" suction couch, 28" diameter breast roll, 8" diameter table rolls.

JORDANS
1—No. 2 Appleton, anti friction, with 150 HP motor
1—No. 5 Miami, anti friction
1—No. 2 Dillon
3—Noble & Wood Pony

MOULDS
1—36 x 123"
1—60 x 84"
1—48 x 84"
1—36 x 84"

PAPER MACHINE
1—100" trim combination machine
1—94" trim facial tissue and M G machine with 8" dia. Beloit dryer
1—84" Fourdrinier paper machine

PUMPS
2—12 x 12 Gould triplex
1—10 x 20 Shartle duplex
1— 7 x 10 Gould triplex

SCREENS
2—No. 3 Bird
Flat screens, 3 to 16 plate
Leith Walk and Moore & White rotary

SLITTERS
1—234" Rice Barton
1—150" Moore & White four drum
1—150" Warren two drum
1—130" and one 120" Pusey & Jones two drum
1—112" Kidder
1— 62" Langston
1— 58" Cameron
1— 42" 45 W Cameron

SUCTION ROLLS
1—38 x 180" Couch
1—62 x 180" Press
1—25 x 186" Couch
1—18 x 148" Couch
1—18 x 92" Couch

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1—Baker electric truck, model D T O
1—Walker electric highway truck, 4000 lb. Capacity, Model 42 with generator
1—Automatic tractor and piler

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One complete new drum reel for 72-76" trim. Price reasonable.

One complete spiral tube machine with foot cut-off attachment. Machine is in operation cutting 100,000 cores in 24 hours. Write Box 49-65 c/o Paper Trade Journal. F-10

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1—Langston Single Belt Spiral Paper Tube Winder & Cut-Off saw, one glue pot, suitable for toilet cores and other uses $2000.00

1—38" Board Slitter & Rewinder Shear Cut $1250.00

1—Knowlton S. B. Winder complete 2 glue pots $2750.00
Extra glue pots, etc. etc.

Many other items Tube Machinery

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Also rebuilt Sheeters, Slitters, and Rewinders.

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78" Hamblet Sheeter, with Hamblet layboy and 10 roll backstand. Immediately available. Can be seen in operation. $3500.

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1—Biggs Globe Rotary Digester—complete

1—William Allen Sons Co. Circulating Liquor System complete. Foxboro Recorder and Flow Meter.

1—William Allen Sons Co. Cooker Circulating System complete. Foxboro Liquid Level and Temperature Controller. Never installed.

For further information, write Box 49-68, Paper Trade Journal M-3

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1. Hofft Refuse Burning Furnace—6000# per hour capacity
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Including 800 cu. ft. capacity storage bin with six unloading screws in bottom driven and controlled with a vari-speed unit
Rotary Feeder arrangement and spouts
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All structural steel work doors and other hardware
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#30 Slugger type
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Arranged for V belt drive

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FOR SALE—34" Camachine #6 Slitter-Re-Winder—rebuilt like new; 58" Finley Sheeter with 6-roll Back Stand. THOMAS W. HALL COMPANY, INC., Stamford, Conn. F-10

FOR SALE—52" Slitter-Rewinder manufactured by Cannard, Score-cutter. Rebuilt. Ran day and night until recently when it was replaced by larger machine. Exceptional value at $2,500.00. THE PAPERCRAFT CORPORATION, Paper Square, Pittsburgh, Pennsylvania. TF

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FOR SALE—IMPCO Vacuum Washer 8' diameter by 14' length of face, together with one repulper. Used only 24 hours. Address Box 49-76 care Paper Trade Journal. F-10

FOR SALE—Seven Wet Felts, size 36' x 88". Address Box 49-77 care Paper Trade Journal. F-17

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WANTED TO PURCHASE
1 only Used Super Calender Stack for 34 lb. Newsprint, preferably with Electric Drive for 550 Volt, 3 phase, 25 cycle and with unwind and rewind stands and reels to be capable of trimming 66½".

Alternately—1 only Stack capable of trimming 184".

Reply to Box 49-72, Paper Trade Journal. F-17

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#4 Reeves Drives in good working condition. Please advise lowest cash price. John Schuster, Miamisburg Box Board Division, Miamisburg, Ohio. F-17

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 48-223 care Paper Trade Journal. TF

WANTED—Brightwood Box Machine. Address Box 48-224 care Paper Trade Journal. TF

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WANTED—Moore & White Fuellner White Water Saveall. Address Box 49-78 care Paper Trade Journal. M-3

WANTED—Complete Embosser suitable for tissue grades. Address Box 49-74 care Paper Trade Journal. F-10

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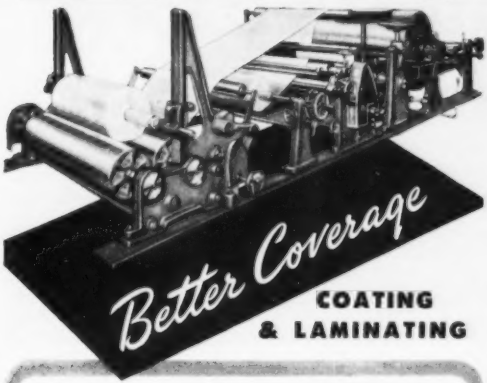

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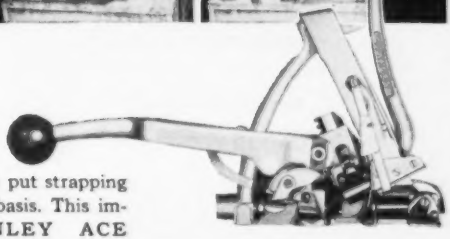

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Combustion Engrg. Co., Inc.
Foster Wheeler Company

Bottoms
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

Brush Rolls
M. W. Jenkins Sons, Inc.

Brushes
M. W. Jenkins Sons, Inc.

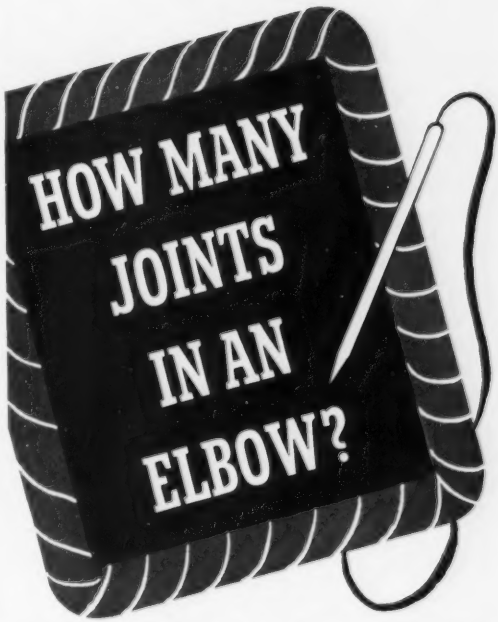
Bursting Testers
B. F. Perkins & Son Inc.
Testing Machines, Inc.

Calenders
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Co.
The Moore & White Co.
Perkins & Sons, Inc., B. F.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

Carrier Rope
Williams-Gray Co.

Casein
American Cyanamid Co., Industrial Chem. Div.
Hercules Powder Co., Inc.

Castings
American Cast Iron Pipe Co.
Appleton Machine Co.
Babcock & Wilcox Co.
Black-Clawson Company
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Frederick Iron & Steel, Inc.
Hamblett Machine Co.
Hardinge Company, Inc.
E. D. Jones & Sons Co.
Lobdell Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
The Midvale Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.



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ARMCO Welded Steel Pipe will meet your every requirement. Diameters range from 6 to 36 inches; wall thicknesses from 9/64- to 1/2-inch. Uniform lengths run up to 50 feet. Ask us for specific data regarding that next piping job. Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 1185 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

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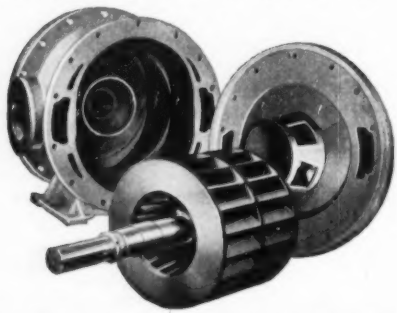
SIMPLICITY



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Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.
Walworth Company

Centrifugal Machinery

Bird Machine Co.
Nichols Engrg. & Research Corp.
Ross, J. O., Engrg. Co.
Shartle Brothers Machine Co.

Chains

Chain Belt Company
Link Belt Company

Chemical Cotton Pulp

Hercules Powder Co.

Chemicals

Adell Chemical Co.
Alhydro, Inc.
American Anode, Incorporated
American Cyanamid Co., Industrial Chem. Div.
Ansul Chemical Co.
Buffalo Electro-Chemical Co., Inc.
Carco Chemical Co.
Calgon, Inc.
Cowles Chemical Company
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
Gotteaman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Mallinckrodt Chemical Works
Monsanto Chemical Company
The Mathieson Alkali Wks., Inc.
National Aluminate Corp.
Niagara Alkali Company
Nopco Chemical Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Reichhold Chemicals, Inc.
Rohm & Haas Co.
Solvay Sales Corp.
Virginia Smelting Co.
Witco Chemical Co.
Wyandotte Chemical Corp.

Chests

Kalamazoo Tank & Silo Co.

Cleaning Materials

Adell Chemical Company
Amer. Cyanamid & Chem. Corp.
Cowles Chemical Company
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co.
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B. Ford Division

Clutches

Appleton Machine Co.
Black Clawson Company
Farrel-Birmingham Co.
Hardinge Company, Inc.
Hudson Sharp Machine Co.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works

Coating Machinery

Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Hudson Sharp Machine Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

Coating Materials

American Anode Div., The B. F. Goodrich Chem. Co.
E. I. Du Pont De Nemours & Co., Inc., Pigments Dept.
The Goodyear Tire & Rubber Company
Monsanto Chemical Company
Nopco Chemical Co.

Where

Cogs

The N. P. Bowsher Co.

Compounded Latices

American Anode Div., The B. F. Goodrich Chem. Co.

Compressors

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Ingersoll-Rand Co.
Nash Engineering Co.

Consistency Regulators

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DeZurik Shower Company
Paper & Industrial Appliances

Consulting Engineers

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Frederic C. Clark Associates
Ebasco Services
Frank W. Egan & Co.
Ferguson, Hardy S.
C. M. Guest & Sons
Hardy, George F.
Alvin H. Johnson & Co., Inc.
Main, Inc., Chas. T.
The MacPherson Company
Roderick O'Donoghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
Stone & Webster Engrg. Corp.
John Waldron Corp.
H. G. Weber & Co., Inc.
Frederick Wierk

Controllers

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The Bristol Co.
The Brown Instrument Co.
Cochrane Corp.

Controls

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The Brown Instrument Co.
Cochrane Corp.
Johnson Corp.
Stuckle Steam Specialties Co.

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American Well Works
Black-Clawson Company
Chain Belt Company
Frederick Iron & Steel, Inc.
Industrial Brownhoist Corp.
Link Belt Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co.

Core Cutters

Suburban Machine Co.

Cores

Ehrman Paper Co.
Rodney Hunt Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.
Walker-Goulard-Plehn Co.

Couplings

Black-Clawson Company
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

Cranes

Cleveland Crane & Engrg. Co.
Industrial Brownhoist Corp.
Link Belt Company
Whiting Corp.

Cup and Container Machines

Mercury Engrg. Corp.

Cutters

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Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

to Buy

Cylinders
M. W. Jenkins Sons, Inc.
National Tube Co.

Dampeners
Perkins & Son, Inc., B. F.
Raybestos-Manhattan Inc., Manhattan Rubber Division
Valley Iron Works Co.

Deasphalting Chemicals
Adell Chemical Company

Deckle Straps
Stowe Woodward, Inc.

Deckle Webbing
Williams-Gray Co.

De-Inking
Adell Chemical Company
Buffalo Electro-Chemical Co., Inc.
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
Roderick O'Donoghue
Shartle Brothers Machine Co.

Deinking Chemicals
Adell Chemical Company
E. I. Du Pont De Nemours & Co., Inc., Pigments Dept.
General Dyestuff Corp.
Kinsley Chemical Co.
Monsanto Chemical Company
Philadelphia Quartz Co.

Densometers
W. & L. E. Gurley

Design Construction
Ebasco Services

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Adell Chemical Company
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Dewaxing Chemicals
Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.

Digesters
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
Foster Wheeler Corp.
General American Trans. Corp.
Lukenweld
Pusey & Jones Corp.

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Adell Chemical Company
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.

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Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Doctor Blades
Bird Machine Company
Black-Clawson Company
Lodding Engrg. Corp.
Raybestos-Manhattan Inc., Manhattan Rubber Division
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Driers
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hardinge Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
The Youngstown Welding & Engrg. Co.

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Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Chain Belt Company
Davis, Frank H., Co.
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Syco Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

Dryer Drainage
Stickle Steam Specialties Co.

Dusters
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

Dusting Brushes
M. W. Jenkins Sons, Inc.

Dyestuffs
American Cyanamid Company, Calco Chemical Div.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.
C. K. Williams & Co.
Witco Chemical Co.

Embossing Rolls
The Appleton Machine Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Midvale Company
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

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Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Enzymes
Rohm & Haas Co.

Evaporators
Foster Wheeler Corp.
General American Transportation Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

Expanders
Mount Hope Machinery Co.

Fans
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

Feeders
Hardinge Company, Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup

Felts
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bulkley, Dunton Pulp Co., In
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
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Felt Guides
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Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

Fillers
American Cyanamid Company, Industrial Chemicals Division
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Witco Chemical Co.

Filters
R. P. Adams Co., Inc.
Bird Machine Company
Cochrane Corp.
General American Transportation Corp.
Hardinge Company, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Walworth Company

Fittings
Crane Company
Ladish Company
Phoenix Products Co.
Walworth Company

Flexible Couplings
Ajax Flexible Coupling Co.

Flooring, Grating and Treads
The Goodyear Tire & Rubber Company
Norton Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division

Flow Boxes, Stainless-Clad
Lukens Steel Co.

Forming Machines
Black-Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co
Oliver United Filters, Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co

Friction Materials
Johns-Manville Sales Corp.
Raybestos-Manhattan Inc., Manhattan Rubber Division

Freeness Testers
Testing Machines, Inc.

Gaskets
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Raybestos-Manhattan Inc., Manhattan Rubber Division

Gears
Black-Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co
Smith & Winchester Mfg. Co
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corp

Grinders
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

Grinding Wheels
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company

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Mount Hope Machinery Co.
Bound Brook Engrg. Co.

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Stein-Hall Co., Inc.

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Babcock & Wilcox Co.
Lukens Steel Company

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Stickle Steam Specialties Co.
Westinghouse Electric Corp.

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Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
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Minneapolis-Honeywell Regulator Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

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Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

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Raybestos-Manhattan Inc., Manhattan Rubber Division

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Clark Equipt. Co., Clark Tractor Div.
Towmotor Corp.

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Gotham Ink & Color Co.

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The Brown Instrument Co.
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Williams Apparatus Co., Inc.

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Perfecting Service Corp.

Jordan Fillings
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

Knives
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Taylor Stiles & Co.
Valley Iron Works Co.

Knot Boring Machines
DeZurik Shower Company

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William Allen Son's Company
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies

to Buy

Testing Machines, Inc.
Valley Iron Works Co.

Lay Boys
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.
Suburban Machine Co.

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Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

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The Wellman Engrg. Co.

Micrometers & Calipers
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

Moisture Content Control
Stickle Steam Specialties Co.

Motors and Generators
Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.

Nickel and Nickel Alloys
The International Nickel Co.

Nozzles
Link Belt Company

Packing Boxes
Johnson Corporation
The Moore & White Co.
Perfecting Service Corp.
Shartle Brothers Machine Co.

Packing
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.

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American Marietta Co., Valdura Division

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Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
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Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

Paper Machine Slices
Black-Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

Paper Tube Machinery
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co
Langston Co., Samuel M.
Suburban Machine Co.

Pasting Machines
Black-Clawson Company
Davis, Frank H., Co.
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

Penstocks
The Biggs Boiler Works Co.

Perforated Metal
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.

Pipe
American Cast Iron Pipe Co.
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Johns-Manville Sales Corp.
Ladish Company
Michigan Pipe Co.
Michigan Steel Casting Co.
National Tube Co.
Stowe-Woodward, Inc.
Walworth Company
Youngstown Welding & Engrg. Co.

Pipe Fittings
American Cast Iron Pipe Co.
The American Rolling Mill Co.
Crane Company
Ladish Company
Michigan Steel Casting Co.
Phoenix Products Co.
Walworth Co.

Pitch Control
General Dyestuff Corp.
Monsanto Chemical Company
Rohm & Haas Co.

Platers
Gibbs-Brower Company, Inc
Perkins & Son, Inc., B. F.

Plates
Armco Steel Corp.
Babcock & Wilcox Co.
The Biggs Boiler Works Co
J. O. Ross Engrg. Corp.
Lukenweld
Lukens Steel Company
Timken Roller Bearing Co.

Plugs
The Appleton Machine Co
Black-Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co

Precision Sample Cutter
Testing Machines, Inc.

Preservatives
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

Pressure Vessels, Steel and Alloy
William Allen Son's Company
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
General American Transportation Corp.
Foster Wheeler Corp.
The Midvale Company

Presses
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Paper Converting Machine Co. Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

Pulp Classifier
The Bauer Bros. Co.

Pulp Stock Valves
Crane Company
Record Fdy. & Mach. Co
Shartle Bros. Mach. Co.

Pulpers
Bauer Brothers Co.
Dilts Machine Works
Shartle Brothers Machine Co.

Pulps
Brown Company
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MUSIC	FILE FOLDER
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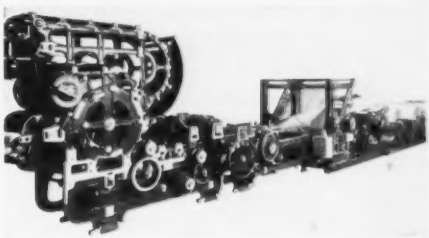

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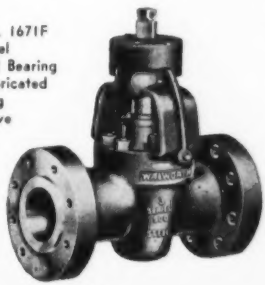

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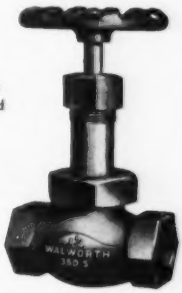

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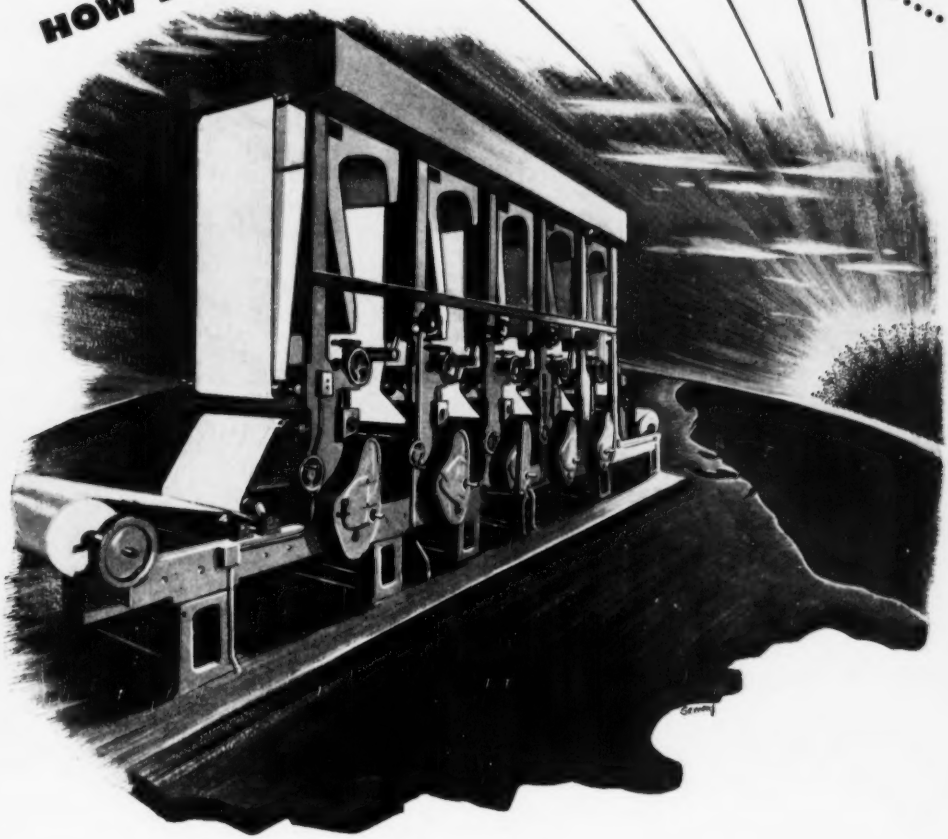

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